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THE

JOURNAL

OF THE

ROYAL GEOGRAPHICAL SOCIETY.

VOLUME THE TWENTY-FOURTH.



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1854.

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EDITED BY DR. NORTON SHAW.

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Royal Geographical Society.

1854.

REPORT OF THE COUNCIL,

READ AT THE ANNIVERSARY MEETING, 22ND MAY.

THE Council took occasion at the last Anniversary Meeting to notice the growing interest manifested by the public in the proceedings of this Society; they have now the pleasure to report, in further evidence of such feeling, a considerable increase in the means placed at their disposal for working out the great national objects of the Institution.

Members,—Ordinary, Honorary, and Corresponding.—The unprecedented accession of new members reported at the last anniversary has been exceeded in the period now under review, during which 112 ordinary members have been added to the lists of the Society. Two *Corresponding* members have been also, upon the recommendation of the Council, duly elected; M. J. M. Ziegler, of Winterthur, referred to in the last Council Report, and Lieut. Joseph René Bellot, of the Imperial French Navy, the gallant and devoted Arctic voyager, our regret for whose early loss we have endeavoured to express by raising a fund for the erection at Greenwich of a monument to his memory, and for the relief of his bereaved family. We have also to regret the decease of Prince Emanuel Galitzin, a corresponding member of the Society, and of 21 ordinary members, and to record the resignation of one ordinary member during the year.

The Society now consists of 770 ordinary, and 58 honorary and corresponding members.

Finances.—The audited accounts of the past year, accompanying this Report, show that whilst the expenditure of the Society has been kept strictly within the estimates submitted to the last General Meeting, the receipts from annual subscriptions, compositions, entrance-fees, and arrears, have greatly exceeded the sums calculated upon. Further investigation will show more fully the improvement which has taken place in the financial position of the Society; for instance, the ordinary receipts, which in the year 1848 were only 696*l.* 10*s.* 5*d.*, and in 1849 778*l.* 3*s.*, increased in 1850 to 1036*l.* 10*s.* 5*d.*, in 1851 to 1056*l.* 11*s.* 8*d.*, in 1852 to 1220*l.* 3*s.* 4*d.*, and now amount to 1693*l.* 0*s.* 8*d.*

This improvement, however encouraging, would hardly warrant the Council in proposing measures, for the extension of the Society's sphere of usefulness, involving considerable immediate expenditure and a probable appeal to its members for additional funds, had not the interest now generally taken in its proceedings, lent such powerful support to the applications for Government assistance, of the President and his immediate predecessors in office, especially of Sir Roderick Murchison, offering in return the advantage of a public Map-room, that Her Majesty's Ministers have felt themselves justified in tendering a yearly grant of 500*l.*, in order that an apartment be provided, in which the Society's valuable collection of Maps and Charts may be rendered available for general reference. This proposition has been gratefully accepted, and the Council is now engaged upon the preliminaries, requisite for carrying into effect with the least possible delay, arrangements in accordance with the Treasury minute.

Publications.—The 23rd volume of the Society's Journal, edited by our able and indefatigable Secretary, Dr. Norton Shaw, has been brought out during the present session. It will be difficult to speak too highly of a publication which contains so many valuable papers, and no less than eleven illustrative maps. An Index to the Journal, volumes xi. to xx., has also been published, and is delivered free to the members of the Society.

The Libraries of the Museum of Practical Geology, the Royal Agricultural Society, the Canadian Institute of Toronto, the Boston Society of Natural History, and the Hydrographic Office of Copenhagen, have been added to the list of Institutions to which the Journals of the Society are presented.

Acting Secretary and Editor.—It has afforded much satisfaction to the Council to have been enabled, by the late progressive improvement of the Society's funds, to replace upon its original footing the salary attached to the important executive offices held by Dr. Norton Shaw, to whose intelligence and assiduity such improvement is, in a great measure, attributable.

Private Donation.—The Council have to report, with suitable acknowledgments, a donation of 50*l.* from our associate Sir Walter Trevelyan, who has also, on many occasions, been a most liberal contributor to the Library of the Society.

Library.—The additions to the Library of the Society during the past year consist of 400 volumes of Books and Pamphlets, 300 sheets of Maps and Charts, and 10 Atlases. Among these valuable donations are comprised a present from Lord Stanley of 60 volumes, chiefly relating to Algeria; a collection of Documents concerning the Arctic Expeditions, presented by Mr. Barrow; French Charts, 17 in number, published and presented by the Dépôt de la Marine; Sanson's Atlas, and a Map of the Mogul Empire, by the Treasury; a folio volume, illustrative of "Scenes in Ethiopia," presented by the Artist, Mr. J. M. Bernatz; Smithsonian Contributions to Knowledge, vol. v., 4to., together with several Maps and other Works, presented by the Smithsonian Institution; the Annual Report of the Superintendent of the U. S. Coast Survey, with a volume containing Sketches to accompany the same; Schoolcraft's History, Condition, and Prospects of the Indian Tribes of the United States, vol. iii., 4to.; Kiepert's Maps of European and Asiatic Turkey; Alex. Keith Johnston's New Edition of the Physical Atlas; eighteen Sheets (being the number hitherto published) of the Great Map of the Kingdom of Sardinia, presented, through our Corresponding Member, Sig. Cristoforo Negri, by the Foreign Office of Sardinia; Transactions of the Imperial Geological Institute of Vienna; of the Lombardo-Veneto Institute of Milan; of the Academies of Paris, St. Petersburg, Madrid, Berlin, Copenhagen, Stockholm, and Christiania, as also of other Foreign Societies; and the Charts published by the Hydrographic Office of the Admiralty.

Royal Donation.—The Gold Medals, forming the annual donation of Her Most Gracious Majesty, have been awarded as follows:—

The Founder's Medal to Rear-Admiral William Henry Smyth, K.S.F., &c., for his numerous valuable Maritime Surveys in the Mediterranean, pursued at considerable pecuniary cost to himself, and commenced at a time when our acquaintance with the physical geography of that sea and the surrounding countries was most imperfect—Surveys which produced 105 Charts and Maps, still used by the Admiralty, and established upwards of 1200 maritime positions on the coasts of France, Spain, Italy, Corsica, Sardinia, Sicily, Croatia, Dalmatia, the Ionian Isles, Greece, and the shores of Africa from Egypt to Morocco; also for his writings upon the Climatology and Natural History of large tracts (including his memoirs on Sicily and Sardinia), and especially for his recent able work, the "Mediterranean," in which his own observations are embodied in a rich compendium of the actual geography of those regions, as compared with their physical features recorded in the classical and mediæval ages.

The Patron's Medal to Captain Robert J. Le M. M'Clure, R.N., of H.M. Ship Investigator, for his remarkable exertions in getting to Behring Strait early enough in 1850 (the same year he left England) to enable him, against great difficulties, to navigate his ship through the ice of the Polar Seas, for his survey of Baring Island, and above all, for his brilliant discovery of the North-West Passage.

The Council cannot conclude this Report without congratulating the Society upon the improved state of its finances, and upon the public recognition of its usefulness now accorded by Her Majesty's Government:—to the enlarged sphere thus opened for its continued labours, the Council heartily invite the co-operation of all those who, with them, feel a common interest in the promotion and diffusion of Geographical knowledge.

BALANCE-SHEET FOR THE YEAR 1853.

Receipts.

			£.	s.	d.
Subscriptions of 286 Fellows			572	0	0
Compositions of 18 Fellows, at £25	£450				
Composition of 1 Fellow, at 22	22				
			472	0	0
Entrance of 100 Fellows, at £3			300	0	0
Sale of 224*l.* 1*s.* 10*d.*			224	1	10
Arrears of Subscriptions paid up			86	0	0
Journals and Indices sold			84	16	3
Dividends on 2000*l.* of 3½ per Cent. (Income Tax deducted.)	£63 2 2				
Dividends on 224*l.* 1*s.* 10*d.* of 3 per Cent. half year	3 5 3				
			66	7	5
Royal Premium			52	10	0
Sir W. C. Trevelyan's Donation			50	0	0
Sundries overpaid			9	7	0
Balance at Banker's January 1st	£522 6 3				
„ in the Secretary's hands	22 15 2				
			545	1	5
			£2462	3	11

Expenditure.

			£.	s.	d.
Journal—Printing Vol. XXII.			210	12	0
„ „ Index			64	1	0
„ Compiling „			25	0	0
„ Illustrations			157	16	9
			457	9	9
Salaries—Secretary and Editor			250	0	0
„ Clerk			60	0	0
„ Junior Clerk			10	0	0
			320	0	0
Wages—Messenger and Housemaid			45	0	0
„ Collector's Poundage			12	14	0
			57	14	0
Amount paid to Expeditions			340	3	0
Repairing Instruments for ditto			5	4	0
			345	7	0
House Rent and Fixtures			257	14	9
„ Furniture and Repairs			8	7	6
			266	2	3
Office Expenses:—					
Postages, Stamps, Freight, Duty, &c.			41	9	7
Stationery			18	13	0
Firing and Lights			17	18	0
Sundry Petty Charges			15	17	11
Evening Meetings			9	12	0
Insurance and Advertisements			15	13	0
			119	3	6
Books and Binding, Diagrams, &c.			53	15	6
Royal Premium (Medals)			46	14	0
Sundries overpaid and returned			9	0	0
Balance at Banker's, Dec. 31st		772 12 3			
„ in the Secretary's hands		14 5 8			
			786	17	11
			£2462	3	11

ROBERT BIDDULPH, *Treasurer.*

Examined and found correct.

E. OSBORNE SMITH,
W. FOSTER WHITE, } *Auditors.*

ESTIMATE FOR THE YEAR 1854.

Receipts.	£.	*s.*	*d.*
Balance at Banker's and Petty Cash	786	17	11
Annual Subscriptions, 300 Members	600	0	0
Life Compositions, 10 ditto	250	0	0
Entrance Fees, 75 ditto	225	0	0
Arrears of Subscriptions	50	0	0
Journals and Indices	100	0	0
Dividends on 2000*l.* Stock	60	0	0
Royal Premium Donation	52	10	0
Government Grant	500	0	0
	£2,624	7	11

Expenditure.	£.	*s.*	*d.*
Journal and Illustrations	600	0	0
Rent, Taxes, and Wages	550	0	0
Salaries	550	0	0
Office Expenses	100	0	0
Fire Assurance and Advertisements	50	0	0
Expenditure for Royal Premiums	52	10	0
Library and Office Fittings	500	0	0
Balance available for Removal Expenses	221	17	11
	£2,624	7	11

NORTON SHAW.

GENERAL ABSTRACT OF AUDITED ACCOUNTS,

FROM THE 14TH OF JULY, 1830, TO THE 31ST OF DECEMBER, 1853.

Receipts.

	£.	s.	d.
Entrance Fees	3,801	0	0
Life Compositions	8,089	0	0
Annual Subscriptions	12,157	19	0
In aid of Expeditions	2,368	5	0
Royal Premiums	1,207	10	0
Sales of Geographical Publications	2,257	8	1
Dividends and other Receipts	3,844	0	3
Sales of Stock	2,963	5	2
	£36,688	7	6

Payments.

	£.	s.	d.
Rent, Fixtures, and Fittings	5,645	8	3
Office Expenses	3,427	3	10
Salaries—Secretary, Editor, and Clerks	6,585	5	0
Cost of Geographical Publications	8,807	14	8
Purchase of Books, Maps, and Instruments	1,232	11	10
Grants in aid of Expeditions	4,186	8	0
Medals and other Premiums	1,301	10	0
Life Compositions invested	4,626	0	0
Subscriptions returned	89	8	0
	£35,901	9	7
Cash balance in hand	786	17	11
	£36,688	7	6

E. OSBORNE SMITH, *Auditor.*

NORTON SHAW, *Secretary.*

Library Regulations.

I. The Library shall be open every day in the week (Sundays excepted) from *Eleven* in the morning to *Five* in the afternoon, except on New Year's Day, Good Friday to Easter Monday inclusive, and Christmas week ; and it shall be closed one month in the year, in order to be thoroughly cleaned, viz. from the first to the last day of September.

II. Every Member of the Society shall be entitled (subject to the Rules) to borrow as many as four volumes at one time.

Exceptions :

1. Dictionaries, Encyclopædias, and other works of reference and cost, Minute Books, Manuscripts, Atlases, Books and Illustrations in loose sheets, Drawings, Prints and unbound Numbers of Periodical Works, *unless with the special written sanction of the President.*
2. Maps or Charts, *unless by written order of the President, Council, or Secretaries.*
3. New Works before the expiration of a month after reception.

III. The title of every Book, Pamphlet, Map, or Work of any kind lent, shall first be entered in the register, with the borrower's signature, or accompanied by a separate note in his hand.

IV. No work of any kind shall be retained longer than one month ; but at the expiration of that period, or sooner, the same shall be returned free of expense, and may then, upon *re-entry*, be again borrowed, provided that no application shall have been made in the mean time by any other Member.

V. In all cases a list of the Books, &c., or other property of the Society, in the possession of any member, shall be sent in to the Secretary *on or before the 1st of July in each year.*

VI. In every case of loss or damage to any volume, or other property of the Society, the borrower shall make good the same.

VII. No stranger shall be admitted to the Library except by the introduction of a Member, whose name, together with that of the Visitor, shall be inserted in a book kept for that purpose.

VIII. Members transgressing any of the above Regulations shall be reported by the Secretary to the Council, who will take such steps as the case may require.

By Order of the Council,

NORTON SHAW.

December 9, 1850.

ROYAL GEOGRAPHICAL SOCIETY.

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THE QUEEN.

Vice-Patron.

H. R. H. PRINCE ALBERT.

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(ELECTED 22ND MAY, 1854.)

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(25)

FELLOWS.

N.B.—*Those having * preceding their names have compounded for life.*
Those having † have requested to be placed on the list as abroad.

Year of Election.	
1830	Aberdeen, George, Earl of, K.G., K.T., M.A., F.R.S. *Argyll-house, Argyll-street; and Haddo-house, Aberdeen.*
1853	Acland, Sir Peregrine Palmer F. P., Bart. *Fairfield, Somerset.*
1830	*Acland, Sir Thomas Dyke, Bart., M.P., F.R.S. *Waterloo-hotel, Jermyn-street; and Killerton-park, Devon.*
1830	*Adamson, John, Esq., F.L.S. *Newcastle-upon-Tyne.*
1830	*Ainsworth, William Francis, Esq., F.S.A. *Thames-villa, Hammersmith.*
1830	*Albemarle, George Thomas, Earl of. *Brooks' Club, St. James'; Quiddenham-hall, Larlingford, Norfolk; and Elveden-hall, Suffolk.*
1834	*Alcock, Thomas, Esq., M.P. 88, *Eaton-place; and Kingswood-warren, near Epsom, Surrey.*
1838	*Aldam, William, Esq.
1830	Alexander, Lieut.-Col. Sir Jas. Edward, K.L.S., F.R.A.S., etc. *Malta.*
1835	10*Allen, Capt. Wm., R.N., F.R.S. *Athenæum Club.*
1854	Ancona, J. S., Esq. *Southampton-street, Bloomsbury-square.*
1853	Ansted, Prof. D. T., M.A., F.R.S., etc. 17, *Manchester-street, Manchester-square.*
1830	*Antrobus, Sir Edmund, Bart. 146, *Piccadilly; Lower Cheam, Epsom, Surrey; and Amesbury, Wilts.*
1855	*Arden, Richard Edward, Esq. *Sunbury-park, Middlesex.*
1830	*Arrowsmith, John, Esq., F.R.A.S. 10, *Soho-square.*
1853	*Ashwell, James, Esq., C.E. 38, *Westbourne-terrace, Hyde-park.*
1851	Astley, Francis D. P., Esq., M.R.I. *Fellfoot, Milnthorpe.*
1830	*Atkins, John Pelly, Esq., F.S.A. *Halsted-house, near Sevenoaks.*
1839	Attwood, Matthias Wolverley, Esq. 27, *Gracechurch-street.*
1832	20 Auldjo, John, Esq., F.R.S. *Noel-house, Kensington; and Penighael, Argyleshire.*
1854	Ayrton, Acton, Esq. 24, *Grafton-street, Bond-street.*
1846	*Ayrton, Frederick, Esq. *Egypt.*
1836	*Back, Sir Geo., D.C.L., F.R.S., Capt. R.N. 109, *Gloucester-place, Portman-square.*
1834	*Baillie, David, Esq., F.R.S. 14, *Belgrave-square; and Hill-park, Surrey.*
1830	*Baily, Arthur, Esq., F.R.A.S. 4, *Cumberland-place, Regent's-park; and Hare-field, Southampton.*
1850	Bainbridge, Joseph, Esq. 21, *Hyde-park-gardens.*
1830	*Baker, Lieut.-Colonel.

Year of Election.	
1853	Balfour, John C. B., Esq. *New South Wales.*
1847	Balfour, Lieut.-Colonel George, M.A. *East Indies.*
1852	Bancroft, Lieut. W. C., 16th regt. *Aide de Camp and Military Sec., Jamaica.*
1840	*Barclay, Arthur Kett, Esq., F.R.S. *Park-street, Borough; and Bury-hill, Dorking, Surrey.*
1840	Barclay, Charles, Esq., F.S.A. *Park-street, Borough; and Bury-hill, Dorking, Surrey.*
1852	Barclay, David, Esq. *Eastwick-park, Surrey.*
1849	Barclay, John, Esq. 7, *Jeffreys-square, St. Mary Axe.*
1838	Baring, Right Hon. Sir Francis Thornhill, Bart., M.P., F.R.S. 88, *Jermyn-street; and Stratton-park, Andover, Hants.*
1835	*Baring, John, Esq.
1844	*Baring, Thomas, Esq., M.P. 41, *Upper Grosvenor-street.*
1853	Barnett, Capt. Edward, R.N. 14, *Woburn-square.*
1833	Barrow, John, Esq., F.R.S., F.S.A. 7, *New-street, Spring-gardens.*
1837	*Bateman, James, Esq., F.R.S., L.S. *Knypersley-hall, Staffordshire.*
1852	*Bates, Joshua, Esq. 21, *Arlington-street, Piccadilly; and East Sheen, Surrey.*
1852	Beadmore, Nathaniel, Esq., C.E. 13, *Great College-street, Westminster.*
1830	Beaufort, Rear-Adm. Sir Francis, K.C.B., D.C.L., F.R.S., Corr. Inst. France. 11, *Gloucester-place, Portman-square.*
1854	Beaufort, William Morris, Esq., Bengal Civil Service. 11, *Gloucester-place, Portman-square.*
1851	*Beaumont, Wentworth B., Esq., M.P. 144, *Piccadilly; Bywell-hall, Newcastle-upon-Tyne; and Bretton-park, Wakefield.*
1830	Becher, Commander Alex. B., R.N. *Admiralty; and* 29, *Upper Gloucester-place.*
1838	*Beckford, Francis, Esq. *Traveller's Club.*
1854	Bedford, Commander Edward James, R.N. *Oban, N.B.*
1855	Bedingfield, Lieut. Norman B., R.N. *H.M.'s Yacht 'Victoria and Albert.'*
1853	Beechey, Rear-Admiral Frederick William, F.R.S., F.R.A.S. 8, *Westbourne-crescent, Hyde-park.*
1830	*Belcher, Sir Edward, C.B., F.R.A.S., Capt. R.N. *Union Club.*
1853	Belcher, Rev. Brymer. 46, *St. George's-road, Pimlico.*
1846	Beke, Charles Tilstone, Esq., Ph. Dr., F.S.A., &c. *Mauritius.*
1848	Beldam, Joseph, Esq. 3, *Plowden-buildings, Temple; and Royston, Cambridgeshire.*
1850	*Bell, James, Esq., M.P. 1, *Devonshire-place, Portland-place.*
1830	*Bell, James Christian C., Esq. 42, *Westbourne-terrace; and* 15, *Angel-court, Throgmorton-street.*
1830	*Bennett, John Joseph, Esq., F.R.S. *British Museum.*
1830	Bentham, George, Esq., F.L.S. *Pontrilas-house, near Hereford.*
1842	*Bethune, Capt. C. R. Drinkwater, R.N., C.B. 28, *Great George-street, Westminster.*
1836	Betts, John, Esq. 115, *Strand.*
1845	Biddulph, Robert, Esq. 43, *Charing-cross;* 31, *Eaton-place; and Ledbury, Herefordshire.*

Year of Election.	
1850	Bigsby, John J., Esq., M.D. 89, *Gloucester-place, Portman-square.*
1847	*Bird, James, Esq., M.D. 27, *Hyde-park-square.*
1851	Bird, W. Wilberforce, Esq. 22, *Sussex-square, Hyde-park.*
1836	*Blaauw, William H., Esq., M.A., F.S.A., F.Z.S. 3, *Queen Anne-street; and Beechlands, near Uckfield, Sussex.*
1849	Blackie, W. Graham, Esq., Ph. Dr. 3, *Cumming-street, Glasgow.*
1851	Blackwell, Thomas Evans, Esq., C.E. 10, *Corn-street, Bristol.*
1854	Blaine, D. Roberton, Esq., Barrister-at-Law. 1, *Tanfield-court, Temple; and* 24, *Beaufoy-terrace, Maida-vale.*
1830	*Blanshard, Henry, Esq., M.R.A.S. 53, *Chancery-lane.*
1854	70 Blencowe, Robert, Esq. *The Hook, Lewes.*
1839	*Blewitt, Octavian, Esq. 73, *Great Russell-street.*
1843	*Bliss, Rev. Frederick. *Iwerne Courtney, Blandford.*
1852	Block, Samuel Richard, Esq. *Green-hill, near Whetstone, Herts.*
1837	*Blunt, Joseph, Esq.
1851	Bois, Henry, Esq. 110, *Fenchurch-street.*
1850	†Bollaert, William, Esq. 17, *Gracechurch-street; and Peru.*
1834	*Borradaile, Abraham, Esq. 34, *Fenchurch-street.*
1836	Borradaile, William, Esq. 20, *King's Arms-yard.*
1845	*Borrer, Dawson, Esq. *Barrow-hill, Henfield, Sussex.*
1839	80 *Botfield, Beriah, Esq., F.R.S., F.S.A. 10, *Sackville-street, Piccadilly; and Norton-hall, Northamptonshire.*
1852	Bourke, The Honourable Robert. 24, *Norfolk-street, Park-lane.*
1853	Bourne, Henry, Esq. *Ashted-house, Birmingham.*
1855	Bovet, Charles, Esq. 2, *Cornwall-crescent, Camden Town.*
1854	*Bowen, George Ferguson, Esq., M.A. *Fellow of Brasenose College, Oxford; and Permanent Secretary to the Lord High Commissioner of the Ionian Islands.*
1836	Bower, George, Esq. 6, *Tokenhouse-yard, City.*
1833	Bowles, Vice-Admiral William, C.B. 8, *Hill-street, Berkeley-square.*
1854	Bowring, Sir John, LL.D. *Governor and Commander-in-chief, Hong Kong.*
1845	*Boyd, Edward Lennox, Esq., F.S.A. 8, *Waterloo-place, Pall-mall.*
1851	Bracebridge, Charles Rolt, Esq. *Atherstone, Warwick.*
1854	90 Brand, George, Esq., M.A. *H.M.'s Consul, Angola; and Stonehaven, N.B.*
1852	*Breadalbane, John, Marquis of, K.T., F.R.S. 21, *Park-lane; and Taymouth-castle, Aberfeldie.*
1845	Brent, George Smith, Esq. 13, *Caroline-street, Bedford-square.*
1846	Brereton, Rev. C. D., M.A. *Little Massingham, Rougham, Norfolk.*
1833	*Brereton, Rev. John, LL.D., F.S.A. *Bedford.*
1834	*Breton, William Henry, Esq., Lieut. R.N., M.R.I. *Junior United Service Club; and* 15, *Camden-place, Bath.*
1852	*Brierly, Oswald Walters, Esq. 2, *Hurdwick-place, Mornington-crescent.*
1854	Brine, Lieut. Frederick, R.E. *Claremont, Sidmouth.*
1833	*Brisbane, Gen. Sir Thomas M., Bart., G.C.B., G.C.H., D.C.L., F.R.S., &c. *Makerstoun, Kelso, Scotland.*

Year of Election.	
1833	*Brodie, Sir Benjamin Collins, Bart., D.C.L., F.R.S., &c., Serjeant Surgeon to the Queen. 14, *Saville-row; and Broome-park, Surrey.*
1848	100 Broke, Captain George N., R.N. *H.M.S. 'Gladiator.'*
1830	*Brooke, Sir Arthur de Capell, Bart., M.A., F.R.S. *Athenæum Club; and Oakley, near Kettering, Northamptonshire.*
1838	Brooke, Sir James, K.C.B., D.C.L. *Rajah of Sarawak, Borneo.*
1843	*Brooking, Thomas Holdsworth, Esq. 85, *Gloucester-place, Portman-square.*
1850	Broughton, John, Lord, G.C.B., M.A., F.R.S. 42, *Berkeley-square; and Erlestoke-park, Wilts.*
1837	Brown, John, Esq., F.R.S.N.A. 3, *Newcastle-place, Clerkenwell.*
1830	*Brown, Robert, Esq., Hon. D.C.L., F.R.S., Memb. Inst. Fr., St. Pet., Berlin, V.P. Linn. Soc., &c. 17, *Dean-street, Soho.*
1852	Browning, Henry, Esq., M.R.I. 72, *Grosvenor-street; and Ampton-hall, Bury St. Edmund's.*
1852	*Brunel, Isambard Kingdom, Esq., F.R.S., &c. 18, *Duke-street, Westminster.*
1844	Bryden, William, Esq. 4, *New Palace-yard, Westminster.*
1843	110*Buchan, John H., Esq. *Mexico.*
1853	Buckingham, James Silk, Esq. *Stanhope-lodge, Regent's-villas, Upper Avenue-road, St. John's-wood.*
1830	Bullock, Capt. Frederick, R.N.
1836	Bunbury, E. H., Esq., M.A. 15, *Jermyn-street.*
1850	Bunsen, The Chevalier. *Heidelberg.*
1837	*Burlington, William, Earl of, LL.D., M.A., F.R.S. 10, *Belgrave-square; and Hardwick-hall, Derbyshire.*
1830	*Burney, Ven. Archd. Charles Parr, D.D., F.R.S., F.S.A. *Rectory-house, Bishop's Wickham, Essex.*
1830	*Burton, Alfred, Esq. 36, *Marina, St. Leonard's.*
1833	*Burton, Decimus, Esq., F.R.S., S.A. 6, *Spring-gardens; and St. Leonard's-cottage, Hastings.*
1851	*Buxton, Sir Edward North, Bart. 10, *Upper Grosvenor-street; and Colne-house, Cromer, Norfolk.*
1851	120 Bynoe, Benjamin, Esq., Surgeon R.N. *H.M.S. 'Madagascar,' Rio de Janeiro.*
1854	Byron, the Hon. Frederic. 43, *Park-street, Grosvenor-square.*
1830	*Cabbell, B. B., Esq., M.P., M.A., F.R.S., F.S.A. 1, *Brick-court, Temple; 52, Portland-place; and Aldwick, Sussex.*
1854	Calvert, Frederic, Esq., Q.C. 9, *St. James's-place; and* 8, *New-square, Lincoln's-inn.*
1854	Calvert, John, Esq. 189, *Strand; and Kensington-park, Notting-hill.*
1830	*Camden, George Charles, Marquis, K.G., D.C.L., M.A. 19, *Belgrave-square; Wilderness-park, Sevenoaks, Kent; and Bayham-abbey, Sussex.*
1844	*Campbell, James, Esq.
1834	*Campbell, James, Esq., jun., M.R.I. *Hampton Court-green.*
1851	Campbell, Lieut.-Colonel Neil. *India.*

Year of Election	
1853	*Cardwell, Right Hon. Edward, M.P. 3, *Whitehall-gardens.*
1852	130 Carr, Capt. Washington, R.N. *Junior United Service Club.*
1830	*Cartwright, Samuel, Esq., F.R.S., F.S.A. 32, *Old Burlington-street; and Nizell's-house, Tonbridge.*
1844	*Chadwick, Hugo Mavesyn, Esq. *New Hall, near Sutton-Coldfield.*
1834	*Chapman, Capt. John James, R.A., F.R.S. *Athenæum Club.*
1840	Charters, Major Samuel, R.A. *Athenæum Club; and Florence.*
1848	*Chatterton, Sir William A., Bart. *Rollo-park, Chigwell, Essex.*
1838	*Chesney, Major-General Francis Rawdon, R.A., D.C.L., F.R.S. *Athenæum Club; and Ballyardle, Kilkeel, Down, Ireland.*
1850	Christmas, Rev. H., M.A., D.C.L., F.R.S., F.S.A. 30, *Manor-street, Clapham.*
1854	Christy, Henry, Esq. *Woodbines, near Kingston, Surrey.*
1854	*Church, John William, Esq., B.A. *United University Club; and Woodside, Hatfield.*
1830	140*Church, W. H., Esq.
1849	Churchill, Lord Alfred. 6, *Bury-street, St. James's.*
1853	Clarendon, George William, Earl of, K.G., G.C.B. 1, *Grosvenor-crescent; The Grove, Watford, Herts; and Hindon, Wilts.*
1852	Clark, Daniel, Esq. 49, *Milner-square, Islington.*
1840	*Clark, Sir James, Bart., M.D., F.R.S., Physician to the Queen. 22 *b*, *Brook-street.*
1851	Clark, Rev. Samuel, M.A. *Principal of the Training College, Battersea.*
1830	*Clarke, Sir Chas. Mansfield, Bart., M.D., F.R.S. *Wyginton-lodge, Tamworth, Staffordshire.*
1842	*Clavering, Sir William Aloysius, Bart. 13, *Charles-street, Haymarket; Axwell-park, near Gateshead; and Greencroft, Durham.*
1830	*Clerk, Rt. Hon. Sir George, Bart., M.P., D.C.L., F.R.S., &c. 8, *Park-street, Westminster; and Pennicuik-house, Edinburgh.*
1854	Clowes, George, Esq. *Stamford-street, Blackfriars; and* 57, *Russell-square.*
1854	150 Clowes, William, Esq. *Stamford-street, Blackfriars; and Garretts, Banstead, Surrey.*
1852	Cobbold, John Chevallier, Esq., M.P. *Athenæum Club;* 23, *Suffolk-street; and Ipswich, Suffolk.*
1841	*Cocks, Reginald S. T., Esq. 43, *Charing-cross; and* 36, *Upper Harley-street, Cavendish-square.*
1838	Colchester, Charles, Lord, Rear-Admiral, D.C.L. 32, *Upper Brook-street; and Kidbrooke, Sussex.*
1853	Cole, John Griffith, Esq., M.A., M.R.I. 8, *Charles-street, Berkeley-square.*
1841	*Colebrooke, Sir Thomas Edward, Bart., F.R.A.S. 18, *Park-lane.*
1834	Colebrooke, Major-General Sir Wm., M.G., C.B., K.H., F.R.A.S. *Gov. and Com.-in-Chief of Windward and Leeward Islands.*
1854	Coleman, Everard Home, Esq., F.R.A.S. *Registry and Record Office, Hanmet-street, Minories.*
1848	Coles, Charles, jun., Esq. 86, *Great Tower-street.*
1835	*Collett, William Rickford, Esq.
1830	160 Colquhoun, James, Esq. 3, *Stratford-place; and Penshurst, Kent.*

Year of Election.	
1845	Colquhoun, Patrick, Esq., LL.D., M.A. 3, *Hare-court, Inner Temple.*
1853	Coningham, John, Esq. 11, *Regent-street.*
1830	*Conybeare, the Very Rev. William Daniel, Dean of Llandaff, M.A., F.R.S. *Deanery, Llandaff.*
1843	*Cook, James, Esq., M.S.S. 40, *Mincing-lane.*
1852	Cooke, Robert, Esq. 4, *Elm-court, Temple; and* 38, *Nottingham-place, New Road.*
1830	Cooley, William Desborough, Esq. 33, *King-street, Holborn.*
1843	*Cooper, Capt. D. S., 1st Royal Regt. *Army and Navy Club.*
1853	Coote, Charles Chidley, Esq. *Mount-Coote, Limerick, Ireland.*
1853	Copley, Sir Joseph William, Bart. *Sprotborough, Doncaster.*
1839	170*Corrance, Frederick, Esq. *Parkham-hall, Framlingham, Suffolk.*
1853	*Cosway, William Halliday, Esq. 32 *a*, *Mount-street.*
1854	Cowley, Norman, Esq. *Montagu-place, Montagu-square.*
1854	Cox, Dr. Travers. *Fulham.*
1853	Cracroft, Commander Peter, R.N. *H.M.S. 'Gorgon.'*
1853	Craufurd, Commander Frederic A. B., R.N. *Army and Navy Club.*
1830	*Craufurd, Commander Henry W., R.N. *Royal Hospital, Chelsea.*
1848	Crawford, Robert Wigram, Esq. 71, *Old Broad-street, City.*
1830	Crawfurd, John, Esq., F.R.S. *Athenæum Club.*
1854	*Creswell, Commander Gurney, R.N. *Lynn, Norfolk.*
1852	180 Crowdy, James, Esq. 17, *Serjeants'-inn.*
1839	*Cubitt, Sir William, F.R.S., C.E. 6, *Great George-street, Westminster; and Clapham-common, Surrey.*
1844	*Cubitt, Alderman William, M.P. *Gray's-inn-road.*
1847	*Cunard, Edward, Esq. *New York.*
1853	Cunard, Samuel, Esq. *Howchin's Hotel, St. James's-street.*
1850	Cuninghame, George Corsam, Esq. *Thornton-house, Kilmarnock.*
1838	*Cunningham, George Godfrey, Esq. 2, *Hillside-crescent, Edinburgh.*
1853	Cunningham, John William, Esq., Sec. King's College. *Somerset-house; and Harrow.*
1852	Cunynghame, Colonel Arthur Aug. T., 27th Regt. *United Service Club.*
1843	*Cursetjee, Manockjee, Esq. *Villa-Byculla, Bombay.*
1839	190*Curtis, Timothy, Esq. *Clarence Foundry, Liverpool.*
1851	†Cust, Robert, Esq., Hon. E. I. Company's Civil Service.
1854	Daniell, James Nugent, Esq. *Esher, Surrey.*
1851	*Daniell, William Freeman, Esq., M.D., F.L.S., Surgeon to the Forces. *W. Africa.*
1838	*Darwin, Charles, Esq., M.A., F.R.S. *Athenæum Club; and Down, near Bromley, Kent.*
1846	Davis, Sir John Francis, Bart., K.C.B., F.R.S. *Athenæum Club; and Hollywood, near Bristol, Gloucestershire.*
1840	*Dawnay, the Hon. Payan. *Beningborough-hall, Yorkshire.*
1830	*Dawson, Lieut.-Col. R. K., R.E. *Sewer Commissioner, Greek-street, Soho.*

Year of Election.	
1855	Day, Frederick S., Esq. *Hawarden Grammar School, near Chester.*
1852	De Boinville, Chev. Alexander, K.L.H. 28, *Montpellier-square, Brompton.*
1842	200*De Grey, Thomas Philip, Earl, F.S.A., F.R.A.S. 4, *St. James's-square; Newby-hall, Boroughbridge; and West-park, Silsoe, Beds.*
1844	De la Beche, Sir Hen. Thomas, C.B., F.R.S. *Director-General of the Geological Survey of the United Kingdom, Museum of Practical Geology, Jermyn-street.*
1854	De la Rue, William Frederick, Esq. 118, *Bunhill-row.*
1841	De Mauley, William Francis, Lord, F.R.S. 21, *St. James's-place.*
1834	*Denison, His Excellency Sir William Thomas, F.R.S., R.E. *Governor-General of Australia.*
1836	Denman, Capt. the Hon. Joseph, R.N. 17, *Eaton-terrace.*
1833	*Derby, Edward Geoffrey, Earl of, P.C., F.L.S. *Chancellor of the University of Oxford,* 8, *St. James's-square; and Knowsley-park, Prescott, Lancashire.*
1837	De Ros, Captain the Hon. J. F. Frederick, R.N., F.R.S. 122, *Piccadilly.*
1854	*Devaux, Alexander, Esq. 2, *Avenue-road, Regent's-park.*
1852	Devoy, William, Esq., Barrister-at-Law. *Woodlands, Herts.*
1844	210 Dickenson, Col. Thomas, Bom. Eng., F.R.A.S. *Lower Tulse-hill, Norwood.*
1830	*Dickinson, Francis Henry, Esq., F.S.A. 8, *Upper Harley-street; and King-Weston-park, Somerset.*
1833	Dickinson, John, Esq., F.R.S., F.S.A. *Abbott's-hill, Hemel-Hempstead.*
1852	Dickinson, John, Esq., jun. 12, *Clarence Chambers, Haymarket; and Abbott's-hill, Hemel-Hempstead.*
1854	*Dickinson, Sebastian Stewart, Esq., Barrister-at-Law. *Brown's-hill, Stroud, Gloucestershire.*
1843	Dickson, Peter, Esq., F.S.S. 24, *Chester-terrace, Regent's-park.*
1836	*Dilke, Charles Wentworth, Esq., F.L.S. 76, *Sloane-street.*
1845	*Dilke, Charles Wentworth, Esq., jun. 76, *Sloane-street.*
1840	*Divett, Edward, Esq., M.P. 97, *Eaton-square; and Bystock, near Exmouth, Devon.*
1854	Dixon, Wm. Hepworth, Esq., F.S.A. *Essex Villa, Queen's-road, St. John's-wood.*
1841	220*Dodd, George, Esq., F.S.A. 9, *Grosvenor-place.*
1854	Dodson, John George, Esq. 6, *Seamore-place, Park-lane.*
1854	*Dollond, George, Esq. *St. Paul's Churchyard.*
1854	Domville, William F., Esq., R.N., M.D. *Royal Marine Infirmary, Woolwich.*
1836	Donaldson, Rev. J. W., D.D., F.R.A.S. *Athenæum Club; and Bury St. Edmunds.*
1853	Donaldson, Stuart, Esq. *Sydney, Australia.*
1854	Donkin, Henry, Esq. 6, *Paragon, Kent-road.*
1850	Dover, John William, Esq. 124, *Fenchurch-street.*
1850	Douglas, Sir George, Bart. *Springwood-park, Roxburghshire.*
1854	Dower, John, Esq. 6, *Cumming-street, Pentonville.*
1836	230*Downe, Henry William, Viscount, F.L.S. 8, *Belgrave-square; Danby-lodge, Yorkshire; and Bookham-grove, Surrey.*
1853	Doyle, Sir Francis Hastings C., Bart. 12, *Great Cumberland-place, Hyde-park.*
1845	*Drach, Solomon Moses, Esq., F.R.A.S. 23, *Walpole-street, King's-road, Chelsea.*

Year of Election.	
1849	Draper, George, Esq. 45, *Gloucester-terrace, Hyde-park.*
1846	Drummond, Major-General John. *The Boyce, Newent, Gloucestershire.*
1846	Drury, Commander Byron, R.N. *H.M.S. 'Pandora,' Australian Station.*
1851	*Du Cane, Captain Francis, R.E. 64, *Lowndes-square.*
1851	*Ducie, Henry John, Earl of, F.R.S. 4, *Carlton-house-terrace; and Spring-park, near Stroud, Gloucestershire.*
1830	*Duckett, Sir George, Bart., M.A., F.R.S., &c. *Gloucester-lodge, Gloucester-gate, Regent's-park.*
1852	Dukinfield, Rev. Sir Henry R., Bart. 33, *Eaton-place; and Stanlake-house, Berks.*
1840	240*Dundas, Right Hon. Sir David. 13, *King's-Bench-walk, Temple; and Ochtertyre, co. Perth.*
1830	*Dundas, Rear-Admiral the Hon. Richard Saunders, C.B. *Commander-in-Chief, Baltic Fleet.*
1850	Dunlop, Alexander G., Esq. *Wyndham Club.*
1837	*Dunraven, Edwin Richard, Earl of, F.R.S. *Adare-manor, Limerick; and Dunraven-castle, Glamorganshire.*
1852	D'Urban, Colonel W. J. *Deputy Quartermaster-General, Canada.*
1844	*Ebrington, Hugh, Viscount, M.P. 17, *Grosvenor-square; and Castle-hill, South Molton, Devon.*
1852	Edwards, Henry, Esq. 1, *Bishopsgate-street.*
1833	*Edwards, Thomas Grove, Esq. 8, *York-terrace, Regent's-park.*
1853	Egerton, Captain the Hon. Francis, R.N. *Bridgewater-house.*
1854	Eiffe, Henri Christopher, Esq., F.S.S. 6, *Brompton-grove.*
1845	250 Ellenborough, Edward, Earl of, G.C.B. 92, *Eaton-square; and Southam-house, near Cheltenham.*
1838	*Ellesmere, Francis Egerton, Earl of, K.G., D.C.L., F.S.A., F.R.A.S., Trus. Brit. Mus., &c., &c. *Bridgewater-house, Cleveland-square; Oatlands and Hatchford, Cobham, Surrey; and Worsley-hall, Lancashire.*
1830	Elliot, Admiral the Hon. George, C.B., F.R.S. 88, *Eaton-place.*
1830	Elliott, Charles, Esq., F.R.S. 47, *Portland-place.*
1830	*Elliott, Rev. Charles Boileau, M.A., F.R.S. 47, *Portland-place; and Tattingstone, Suffolk.*
1830	*Elphinstone, the Hon. Mount-Stuart, F.S.S., F.R.A.S. *Athenæum Club; and Waterloo Hotel, Jermyn-street.*
1830	†Enderby, Charles, Esq., F.R.S., F.L.S. 13, *Great St. Helen's.*
1837	*English, Henry, Esq. *Mining Journal Office, Fleet-street.*
1852	Erskine, Captain John Elphinstone, R.N. *H.M.S. 'Monarch;'* 1 L, *Albany; and Cardross, Stirling, N. B.*
1850	Espinasse, Capt. J. W., 12th Regt. *East Suffolk; and Mauritius.*
1836	260 Estcourt, Major-General J. B. Bucknall. *Estcourt, Tetbury, Gloucestershire; and Adjutant-General, Crimea.*
1851	Evans, Rev. Charles. *Rugby.*
1830	*Evans, Capt. George, R.N. 5, *New-street, Spring-gardens; and Englefield-green, Chertsey.*
1830	*Evans, W. Esq.

Year of Election.	
1851	*Evelyn, William J., Esq., M.P., F.S.A. 13, *Bolton-row; and Wotton-house, near Dorking.*
1845	*Everest, Colonel George, Bengal Artillery, F.R.S., &c. 10, *Westbourne-street, Hyde-park.*
1830	*Everett, James, Esq.
1839	Ewer, Walter, Esq., F.R.S., F.L.S. 8, *Portland-place.*
1838	Falconer, Thomas, Esq. *Putney-hill-house, Putney.*
1854	Farmer, William Francis Gamul, Esq. *Nonsuch-park, Surrey.*
1853	270*Fayrer, John, Esq., M.D., Hon. E. India Company's Service. *Lucknow.*
1838	*Fellows, Sir Charles. 4, *Montagu-place, Russell-square; Cowes, Isle of Wight; and Beeston, Nottinghamshire.*
1840	*Fergusson, James, Esq., F.R.A.S. 20, *Langham-place.*
1830	Findlay, Alexander, Esq. 4, *Quality-court, Chancery-lane; and Hayes, Kent.*
1844	Findlay, Alex. George, Esq. 4, *Quality-court, Chancery-lane.*
1830	*Fitton, Wm. Henry, Esq., M.D., F.R.S., F.L.S. *Athenæum Club.*
1830	Fitz-Roy, Capt. Robert, R.N., F.R.S. 38, *Onslow-square, Brompton.*
1830	Fitzwilliam, Charles William, Earl, F.R.S., F.S.A. *Mortimer-house, Halkin-street; Milton, near Peterborough; and Wentworth-house, near Rotherham, Yorkshire.*
1853	*Fleming, Rev. Francis, Military Chaplain. *Port Louis, Mauritius.*
1847	Forrester, Joseph J., Esq. *Crutched Friars, City; and Oporto.*
1839	280 Forster, Rev. Charles, B.D. *Stisted Rectory, Essex.*
1845	*Forster, William Edward, Esq.
1850	†Forsyth, Commander Charles Codrington, R.N. *China Station.*
1850	*Fowler, Robert N., Esq., M.A. 50, *Cornhill; and Tottenham.*
1841	*Fowler, Rear-Admiral Robert M. *Walliscote-house, Pangbourne.*
1830	*Fox, Lieut.-General Charles R. 1, *Addison-road, Kensington.*
1854	Fox, Sir Charles, C.E., F.R.A.S. 8, *New-street, Spring-gardens; and Farquhar-house, Hornsey-lane, Highgate.*
1854	Fraser, Charles, Esq. 38, *Conduit-street.*
1838	Fraser, James Baillie, Esq. *Athenæum Club; and Moriack, Inverness.*
1830	Fraser, Major-General John, R.E. *Deputy Quartermaster-General, Ceylon.*
1852	290 French, Dr. James, C.B. *Inspector-General of Hospitals, Portsmouth.*
1850	Frere, Bartle J. L., Esq. 45, *Bedford-square.*
1839	*Frere, George, Esq., jun. *Cape of Good Hope.*
1839	*Frere, Rev. Temple. *Cloisters, Westminster.*
1842	Frere, William Edw., Esq., F.R.A.S. *Bombay.*
1830	Freshfield, James William, Esq., M.P., F.R.S. 6, *Devonshire-place, Portland-place; and Manor-place, Betchworth, Surrey.*
1853	Frith, John Griffith, Esq. 13, *Wimpole-street; and* 11, *Austin Friars, City.*
1845	*Gage, Admiral Sir William Hall, G.C.H., K.C.B.
1855	*Galloway, John James, Esq. *Survey Department, Sydney.*
1848	*Galton, Capt. Douglas, R.E. 12, *Chester-street, Grosvenor-place.*

Year of Election.	
1850	300*Galton, Francis, Esq. 55, *Victoria-street, Westminster; and* 5, *Bertie-terrace, Leamington.*
1854	*Gammell, Andrew, Esq. *Drumtochty, Kincardineshire, N.B.*
1830	*Garry, Nicholas, Esq., F.H.S. *Esher, near Claremont, Surrey.*
1833	Gascoigne, Capt., Ceylon Rifles. *Athenæum Club.*
1838	*Gawler, Colonel George, K.H. 46, *Upper Berkeley-street.*
1830	*Gibbes, Charles, Esq., M.R.I. 24, *Cavendish-square.*
1852	Gifford, George, Earl of. 2, *Wilton-street, Grosvenor-place.*
1852	Gisborne, Lionel, Esq., C.E. 6, *Duke-street, Adelphi.*
1836	Gladdish, William, Esq. *Cliff-cottage, near Gravesend.*
1846	*Gladstone, William, Esq. 7, *Austin Friars, City.*
1854	310 Glen, Joseph, Esq., Mem. Geogr. Soc. of Bombay. *Oriental Club.*
1853	Goderich, George Frederick, Viscount, M.P. 1, *Carlton-gardens.*
1830	Goldsmidt, Sir Isaac Lyon, Bart., F.R.S., F.S.A. *Park Lodge, Regent's-park; and The Wick, Brighton.*
1853	Gordon, Captain Robert, R.N. *United Service Club.*
1854	Gordon, Harry George, Esq. 1, *Clifton-place, Hyde-park-gardens.*
1853	Gore, Montagu, Esq. 20, *South Audley-street.*
1853	Gore, Richard Thomas, Esq. 6, *Queen-square, Bath.*
1853	Gorman, John, Esq., M.D. *Port St. Mary, Spain.*
1835	Gould, Captain Francis A., R.E. 3, *Bryanston-place.*
1846	Gould, John, Esq., F.R.S., F.L.S. 20, *Broad-street, Golden-square.*
1830	320*Gowen, James Robert, Esq. *Treasurer of the Horticultural Society.* 187*a*, *Piccadilly.*
1854	*Grace, Rear-Admiral Percy. 10, *Mount-street, Grosvenor-square.*
1833	*Graham, the Right Hon. Sir James Robert George, Bart., M.P., F.R.S., &c. 46, *Grosvenor-place; and Netherby, near Carlisle.*
1830	*Graves, Captain Thomas, R.N., F.R.A.S. *Malta.*
1830	*Gray, John Edw., Esq., Ph. D., F.R.S., V.P.Z.S. and L.S., Pr. B.S. *British Museum.*
1830	Greene, Thomas, Esq., M.P. 19, *Duke-street, Westminster; Slyne, Lancaster; and Whittington-hall, near Burton, Westmoreland.*
1830	*Greenough, George Bellas, Esq., F.R.S., F.L.S., &c. *Grove-house, Regent's-park.*
1853	Grenfell, Riversdale W., Esq. 27, *Upper Thames-street.*
1830	*Gresswell, Rev. Richard, M.A., F.R.S. *Worcester College, Oxford.*
1852	Greville, Algernon, Esq. *Travellers' Club.*
1837	330*Grey, Sir George, K.C.B. *Governor and Commander-in-Chief, Cape of Good Hope.*
1844	*Grey, Ralph William, Esq., M.P. 16, *Carlton-house-terrace; and Chipchase-castle, Hexham.*
1836	Griffith, George Reelard, Esq. 80, *Westbourne-terrace, Hyde-park.*
1839	Griffith, John, Esq., F.S.S. 16, *Finsbury-place, South.*
1836	Griffith, Richard Clewin, Esq. 10, *Gower-street.*
1855	Grindrod, R. B., Esq., M.D., LL.D., F.L.S., &c. *Townsend-house, Malvern.*

Year of Election.	
1830	*Gurney, Hudson, Esq., F.R.S., F.S.A. 9, *St. James's-square; and Keswick-hall, near Norwich.*
1841	*Haddington, Thomas, Earl of, K.P., F.R.S. 43, *Berkeley-square; and Tyninghame-house, Prestonkirk, Haddingtonshire.*
1830	*Halford, the Rev. Thomas, M.A. 2, *Hanover-square; Laleham, Middlesex; and Ontwell, Norfolk.*
1853	*Halkett, Rev. Dunbar S. *Little Bookham, Surrey.*
1853	340*Halkett, Lieut. Peter A., R.N. 56, *Jermyn-street.*
1850	*Hall, George, Esq. 44, *Bryanston-square; Barton Seagrave, near Kettering, Northamptonshire; and Portslade, near Shoreham, Sussex.*
1853	Hall, Captain William Hutcheson, R.N., F.R.S. *United Service Club; H.M.S. 'Blenheim;' and Shipbourne Lodge, Tunbridge.*
1830	Hallam, Henry, Esq., Trust. Brit. Mus., M.A., F.R.S., V.P.S.A., F.R.A.S., M. Fr. Inst. 24, *Wilton-crescent; and Pickhurst, Hayes, Kent.*
1830	*Hamilton, Capt. Henry G., R.N. 71, *Eccleston-square.*
1830	Hamilton, Terrick, Esq., F.S.S. 121, *Park-street, Grosvenor-square.*
1846	Hamilton, Captain William Alex. Baillie, R.N., Secretary to the Admiralty. 21, *New-street, Spring-gardens.*
1837	Hamilton, Wm. John, Esq., President G.S. 23, *Chesham-place.*
1830	*Hamilton, William Richard, Esq., Trust. Brit. Mus., F.R.S., F.S.A., V.P.R.S.L., &c. 12, *Bolton-row.*
1830	Hammersley, Charles, Esq. 25, *Park-crescent, Portland-place.*
1830	350*Hammond, William, Esq. 9, *Queen-square, Bloomsbury.*
1853	*Hand, Captain George S., R.N. *United Service Club.*
1837	*Hanmer, Sir John, Bart., M.P., F.R.S. 59, *Eaton-place; and Hanmer-hall and Bettisfield-park, Flintshire.*
1840	*Harcourt, Egerton, Esq. *Athenæum Club.*
1853	Harcourt, Captain Octavius Vernon, R.N. 29, *Devonshire-place, Portland-place; and Swinton-park, Bedale, Yorkshire.*
1834	*Harding, Major-General George Judd, R.E., C.B. 87, *Pall Mall.*
1854	Hardy, Peter, Esq., F.R.S. 36, *Brunswick-square.*
1851	Harrington, Edward J., Esq. 169, *New Bond-street.*
1830	*Harriott, Colonel T. G., R. Staff Corps. *Twickenham.*
1853	Harris, Captain the Hon. Edw. A. J., R.N. *H.B.M.'s Consul for Chili.*
1853	360 Harris, Captain Fortescue. 25, *Orford-terrace, Clapham-road.*
1852	Harris, George Frederick, Esq., M.A. *Harrow-park, Middlesex.*
1847	Harrowby, Dudley, Earl of. 39, *Grosvenor-square; Sandon-house, Lichfield; and Norton, Gloucestershire.*
1854	*Hartland, Frederick D., Esq. 6, *Woburn-place, Russell-square; and The Oatlands, near Cheltenham.*
1846	Harvey, W. S., Esq., R.N. *Portsmouth.*
1834	Hawkins, Bisset, Esq., M.D., F.R.S., F.S.S. 23, *Great Marlborough-street; and West Court, Wokingham, Berks.*

Year of Election.	
1840	*Hawkins, John, Esq.
1830	Hawtrey, Rev. Dr. Edward Craven, D.D., F.S.A. *Eton College.*
1853	Hay, Lord Arthur. *Belgrave-street.*
1852	*Hay, Capt. J. C. Dalrymple, R.N. *H.M.S. 'Victory.'* 24, *Princes'-gate, Hyde-park, South.*
1830	370*Hay, Robert Wm., Esq., F.R.S., F.S.A., &c. *Bleckenden-terrace, Southampton.*
1853	Hayward, Robert Newton, Esq. *Sidney Lodge, Mooningside, Edinburgh.*
1837	*Henderson, James, Esq. *Littlewood-park, Forbes, Aberdeenshire.*
1853	Henderson, John, Esq. *Valparaiso.*
1852	Henderson, William, Esq. 5, *Stanhope-street, Hyde-park-gardens.*
1844	*Heneage, Edward, Esq. 39, *Charles-street, Berkeley-square.*
1838	*Henry, William Charles, M.D., F.R.S. *Haffield, near Ledbury, Herefordshire.*
1834	Herbert, Jacob, Esq. *Trinity-house, Tower-hill.*
1845	*Herbert, Right Hon. Sidney, M.P. 49, *Belgrave-square; and Wilton-house, Wilts.*
1833	*Herbert, Sir Thomas, M.P., K.C.B., Rear-Admiral. 74, *Cadogan-place; and Tore Cottage, Killarney, Ireland.*
1841	380 Hessey, James Augustus, Esq. 4, *St. Barnabas-terrace, Addison-road, Kensington.*
1840	*Heywood, James, Esq., M.P., F.R.S., F.S.A. *Athenæum Club;* 5, *Eaton-place; and The Headlands, Prestwich, near Manchester.*
1853	Hickey, Edwin, Esq. *Sydney.*
1836	Hill, Henry, Esq. *Athenæum Club.*
1854	Hill, Lieut.-Colonel Stephen J. *Army and Navy Club; and Governor and Commander-in-Chief, Gold Coast.*
1846	*Hindmarsh, Frederick, Esq. 17, *Bucklersbury.*
1846	Hobbs, J. S., Esq. 157, *Leadenhall-street, City.*
1830	*Hobhouse, Henry William, Esq. 28, *South-street, Park-lane.*
1834	*Hodgkin, Thomas, Esq., M.D. 35, *Bedford-square.*
1830	Hogg, John, Esq., M.A., F.R.S., F.L.S., Foreign Sec. R. Soc. of Literature. 12, *King's Bench-walk, Temple; and Norton-house, Stockton-upon-Tees.*
1839	390*Holford, R. S., Esq. 145, *Terrace, Piccadilly.*
1830	Holland, Sir Henry, Bart., M.D., F.R.S. 25, *Lower Brook-street.*
1847	Holman, J. Baptiste, Esq. 15, *Bedford-row, Bloomsbury.*
1835	*Holmes, James, Esq. 4, *New Ormond-street, Queen-square.*
1839	*Holroyd, Arthur Todd, Esq., M.D., F.L.S. *Athenæum Club.*
1830	*Hooker, Sir Wm. Jackson, K.H., Ph. D., LL.D., F.R.S., F.S.A., F.L.S., &c. *West-park, Kew.*
1846	*Hope, Alex. James Beresford, Esq. 1, *Connaught-place, Hyde-park; and Bedgebury-park, Hurst-green, Kent.*
1853	Hoskins, George Alex., Esq. 10, *Gloucester-square, Hyde-park.*
1853	Howard, Sir Ralph, Bart. 17, *Belgrave-square; and Bushy-park, Wicklow.*
1845	Howse, Joseph, Esq. *Cirencester.*
1842	400*Hubbard, J. Gellibrand, Esq. 24, *Princes'-gate, Hyde-park, South.*
1849	Hughes, Edward, Esq., F.R.A.S. *Royal Naval School, Greenwich.*
1838	Hughes, William, Esq. 13, *Paternoster-row.*

Year of Election.	
1838	*Hume, Edmund Kent, Esq.
1851	Hyde, James Bartlett, Esq. *Apley, Ryde, Isle of Wight.*
1854	Ifill, Benjamin, Esq. 2, *Craven-place, Bayswater.*
1852	Illingworth, Richard Stonehewer, Esq. 9, *Norfolk-crescent, Hyde-park.*
1850	*Imray, James, Esq., jun. 102, *Minories; and Manor-park, Streatham.*
1851	Inglefield, Captain Edward A., R.N., F.R.S. 9, *Portsea-place, Connaught-square.*
1830	*Inglis, Sir Robert H., Bart., D.C.L., F.R.S., F.S.A., F.R.A.S. 7, *Bedford-square; Battersea-rise, Surrey; and Milton Bryant, Bedfordshire.*
1846	410 Ingram, Hughes Francis, Esq. *University Club; and Yotes-court, Mereworth, Maidstone.*
1852	Inskip, Rev. Robert Mills. 8, *Boon's-place, Plymouth.*
1840	*Irby, Frederick, Esq. *Athenæum Club.*
1853	†Irving, Edward George, Esq., M.D., R.N. *W. Africa.*
1853	Irving, Thomas, Esq. 9, *Norland-place, Notting-hill.*
1850	Jackson, William, Esq. 47, *Russell-square.*
1854	Jellicoe, Charles, Esq. 5, *Wimpole-street.*
1854	Jenkins, Capt. Griffith, I.N. *East India Club, St. James's-square.*
1837	*Jenkins, R. Castle, Esq.
1853	Jenkyn, Rev. Thomas Williams, D.D., F.G.S. *Rochester.*
1851	420 Jennings, John, Esq., F.S.S. 2, *Albert-terrace, Stoke Newington.*
1854	*Jennings, William, Esq., M.A. 13, *Victoria-street, Westminster.*
1837	Jervis, Lieut.-Col. Thomas Best, E.I.C. Eng., F.R.S., F.L.S. *Athenæum Club.*
1854	Johnson, John Hugh, Esq. 26, *Egerton-street, Liverpool.*
1843	Johnston, Alex. Keith, Esq., F.R.S.E., Hon. Mem. Berl. Geog. Soc., etc. 4, *St. Andrew-square, Edinburgh.*
1853	Johnstone, Sir John Vanden Bempde, Bart., M.P., D.C.L. 27, *Grosvenor-square; and Hackness-hall, near Scarborough.*
1851	Jones, Major-General Harry David, R.E. *Crimea.*
1843	*Jones, William H., Esq., F.H.S. 4, *Rupert-street.*
1840	*Kalergi, John, Esq., M.R.I. 3, *Montagu-square.*
1845	*Kellett, Capt. Henry, R.N., C.B.
1854	430 Kennedy, Rev. John, M.A. 4, *Stepney-green.*
1851	†Kent, John, Esq. *Moreton Bay, Australia.*
1846	Kenyon, John, Esq., F.G.S. 39, *Devonshire-place, Portland-place; and The Cottage, Wimbledon.*
1846	King, Lieut.-Colonel Edward R., 36th Regt. *Zante.*
1830	*King, Captain Philip Parker, R.N., F.R.S., F.L.S. *Dunheved, New South Wales.*
1853	Knight, Charles, Esq. 90, *Fleet-street; and 8, Carlton-villas, Maida-vale.*
1849	*Laffan, Capt. Robert Michael, R.E., M.P. *Army and Navy Club; and Otham-lodge, Kent.*
1833	*Laird, M'Gregor, Esq. 3, *Mincing-lane; and 8, Paragon, Blackheath.*

Year of Election.	
1838	*Lance, John Henry, Esq., F.L.S. *The Cedars, Burlington-lane, Chiswick.*
1852	Langston, J. Haughton, Esq., M.P., F.H.S. 143, *Piccadilly; and Sarsden-house, Chipping Norton, Oxon.*
1843	440*Larcom, Lieut.-Colonel Thomas Aiskew, R.E., F.R.S. *Custom-house, Dublin.*
1852	Latham, Robert Gordon, Esq., M.D., F.R.S., &c. 29, *Upper Southwick-street, Oxford-terrace.*
1854	Latrobe, Charles Joseph, Esq. *Saxby, Lincolnshire.*
1854	Laurie, Walter, Esq. 2, *Princes-street, Mansion-house.*
1846	*Law, the Hon. Henry Spencer, M.A. *Ellington-house, Ramsgate.*
1830	Law, William J., Esq. 63, *Upper Seymour-street;* 33, *Lincoln's-inn-fields; and* 5, *Sussex-square, Brighton.*
1851	†Lawrence, The Hon. Abbott. *Boston, U.S.*
1850	Lawrence, Edward B., Esq. 20, *King-street, Portman-square.*
1830	*Leake, Colonel William M., LL.D., F.R.S. 50, *Queen-Anne-street.*
1853	*Le Breton, Francis, Esq. 21, *Sussex-place, Regent's-park.*
1830	450*Lee, John, Esq., LL.D., F.R.S., F.S.A., &c. 5, *College, Doctors'-commons; and Hartwell-house, near Aylesbury, Bucks.*
1839	Lee, Thomas, Esq., M.S.S., M.R.I. 5, *George-yard, Lombard-street; and* 21, *Cambridge-terrace, Hyde-park.*
1833	*Lefevre, John George Shaw, Esq., M.A., F.R.S., Vice-Chancellor of the University of London. 6, *Old Palace-yard.*
1853	Lefroy, Captain John Henry, R.A., F.R.S. 54, *Cambridge-terrace, Hyde-park.*
1845	Leigh, John Studdy, Esq. 15, *Westbourne-park-crescent.*
1836	Lemon, Sir Charles, Bart., M.P., F.R.S., F.H.S., &c. 46, *Charles-street, Berkeley-square; and Carclew, near Falmouth, Cornwall.*
1840	*Letts, Thomas, Esq. 8, *Royal Exchange.*
1853	Levesque, Peter, Esq., F.S.A. 29, *Guildford-street, Russell-square.*
1830	Levien, Edward, Esq. 121, *Gloucester-terrace.*
1852	Leycester, Lieut. Edmund M., R.N. *H.M.S. 'Laurel,' Portsmouth.*
1853	460 Loch, James, Esq. 12, *Albemarle-street; Worsley Old-hall, Manchester; and Uppat, Galspie, N.B.*
1852	Locke, Joseph, Esq., M.P., F.R.S. 23, *Lowndes-square; and* 13, *Duke-street, Westminster.*
1855	Login, Sir John S., Surgeon E. I. C. Service. *Rochampton.*
1850	Londesborough, Albert Lord, F.R.S., F.S.A. 8, *Carlton-house-terrace; and Grimston, Tadcaster, Yorkshire.*
1830	Long, George, Esq., M.A. 159, *Western-road, Brighton.*
1839	*Long, Henry, Esq. *Hampton-lodge, near Farnham, Surrey.*
1847	Longman, Thomas, Esq. *Paternoster-row; and* 8, *Sussex-square, Hyde-park.*
1830	Lowry, Joseph Wilson, Esq. *Robert-street, Hampstead-road.*
1830	*Lyell, Sir Charles, M.A., LL.D., F.R.S., F.L.S., Hon. M.R.S. Ed. 11, *Harley-street, Cavendish-square.*
1837	*Lynch, Capt. H. Blosse, Indian Navy, F.R.A.S.
1830	470 MacDonnell, John, Esq., F.G.S. 41, *Grove-end-road, St. John's-wood.*

Year of Election.		
1854		McDowell, William, Esq. 29, *Threadneedle-street, City.*
1851	†	MacGillivray, John, Esq. *H.M.S. 'Pandora,' Australia.*
1839		Macintosh, Major-Gen. Alex. Fisher, K.H. *Antermony, near Glasgow.*
1845	*	Macintyre, Patrick, Esq., F.S.A., Off. Assoc. Inst. Act. 8, *Waterloo-place, Pall-mall; and* 13, *Greville-place, Kilburn-priory.*
1845		Mackenzie, Right Hon. Holt, F.R.A.S. *Athenæum Club; and* 28, *Wimpole-street.*
1830		Mackillop, James, Esq., F.R.A.S. *King's-arms-yard.*
1852		M'Leod, J. Lyons, Esq. *Belmont-lodge, Stockwell.*
1852		M'Leod, Walter, Esq., Head Master of the Royal Military Asylum, Chelsea.
1855		Maclure, Andrew, Esq. 37, *Walbrook, City.*
1855	480	Macnab, John, Esq. *Edinburgh.*
1839		M'Neil, Sir John, LL.D. *Athenæum Club; and* 28, *Rutland-square, Dublin.*
1845		Macqueen, James, Esq. 18, *Kensington-crescent.*
1830	*	Magrath, Edward, Esq. *Hampstead Heath.*
1853		Majendie, Ashhurst, Esq., F.R.S. *Hedingham-castle, Essex.*
1845	*	Major, Richard Henry, Esq. *British Museum.*
1853		Malby, Thomas, Esq. 8, *Swinton-street, Gray's-inn-road.*
1843	*	Malcolm, W. E., Esq. *Burnfoot, Langholme, near Carlisle.*
1853	*	Mallet, Charles, Esq. *Audit Office; and Belmont, Hampstead.*
1836	*	Manchester, James Prince Lee, Bishop of, F.R.S., &c. *Sedgley-hall, Manchester.*
1830	490*	Mangles, Capt. James, R.N., F.R.S. *Fairfield, near Exeter.*
1830	*	Marjoribanks, Edward, Esq. 34, *Wimpole-street.*
1854		Markham, Clements Robert, Esq. *Union Club; and* 4, *Onslow-square, Brompton.*
1836	*	Markham, Edward, Esq. 45, *Welbeck-street, Cavendish-square.*
1854		Marshall, James Garth, Esq. 37, *South-street, Grosvenor-square; Headingley, near Leeds, Yorkshire; and Monk Coniston, Ambleside.*
1830	*	Martin, Rev. Joseph William, LL.B. *Keston, Kent.*
1850		Martin, R. Montgomery, Esq. 23, *Gloucester-street, Camden-hill, Kensington.*
1830	*	Martineau, Joseph, Esq., F.Z.S., F.H.S. *Athenæum Club; and Basing-park, Alton, Hants.*
1845	*	Matheson, Sir James, Bart., M.P., F.R.S. 13, *Cleveland-row; and Achany, Bonar-bridge, Sutherlandshire, &c.*
1830	*	Mathison, G. F., Esq., M.R.I. *Old Palace, Richmond-green.*
1837	500*	Maughan, Captain P., Indian Navy, F.R.A.S. 37, *Melvill-street, Edinburgh.*
1834		Meek, Sir James, C.B. *Ilfracombe, Devon.*
1838		Melvill, Philip, Esq., F.R.A.S. *East India House.*
1854		Melville, Lieut.-Colonel, Military Secretary to the Bombay Government. 26, *Upper Seymour-street.*
1830	*	Mercier, Francis, Esq., F.S.A. 5, *Hamilton-terrace, St. John's-wood.*
1842	*	Merivale, Herman, Esq., Under Secretary of State for the Colonies. 26, *Westbourne-terrace.*
1854		Methuen, Captain Robert. *Oriental Club.*
1853	*	Miller, Commander Thomas, R.N. *H.M.S. 'Crane,' West coast of Africa.*
1845		Milne, Alexander, Esq., Commissioner of Woods and Forests. 29, *St. James's-place.*
1849		Milner, Rev. Thomas, M.A. *Albion-house, Loughborough-road, Brixton.*

Year of Election	
1853	Milnes, Richard Monckton, Esq., M.P. 16, *Upper Brook-street; The Hull, Bawtry; and Fryston-hall, Ferribridge, Yorkshire.*
1837	*Milton, William Thomas Viscount, M.P., F.Z.S. 4, *Grosvenor-square; and Wentworth-house, Rotherham, Yorkshire.*
1830	*Mitchell, Colonel Sir Thomas Livingstone, D.C.L. *Park-hall; and Carthona, New South Wales.*
1851	*Mocatta, Frederick, Esq. 2, *Woburn-place, Russell-square.*
1853	Mocatta, George, Esq. *Sydney.*
1853	Moffatt, George, Esq., M.P. 103, *Eaton-square.*
1852	Molesworth, Right Hon. Sir William, Bart., M.P., F.R.S., F.S.S. 87, *Eaton-place; Pencarrow, Bodmin, Cornwall; and Telcott, Devon.*
1842	*Montagu, Major Willoughby, *Clapham-common.*
1842	*Monteagle, Thomas Lord, F.R.S., F.S.S. 7, *Park-street, Westminster; and Mount Trenchard, Limerick.*
1830	*Montefiore, Sir Moses, Bart., F.R.S. 7, *Grosvenor-gate, Park-lane; and East Cliff-lodge, Ramsgate.*
1830	*Monteith, Major-General William, E.I.C. Eng., F.R.S., F.S.S. 47, *Gloucester-place, Portman-square; and Oriental Club.*
1839	Moody, Captain R. C., R.E. *Ordnance Office, Chatham.*
1854	Moore, Major J. A., F.R.S. 19, *Portland-place.*
1853	Moorsom, Captain William, R.N. *Army and Navy Club.*
1830	*Morison, James, Esq. 57, *Upper Harley-street.*
1830	*Mornay, Aristides Franklin, Esq., F.L.S., F.G.S.
1839	*Morris, Charles, Esq. *University Club.*
1855	Muir, Thomas, Esq. 24, *York-terrace, Regent's-park.*
1830	*Murchison, Sir Roderick Impey, G.C.St.S., M.A., D.C.L., F.R.S., V.P.G.S., and L.S., Trust. Brit. Mus., Hon. Mem. R.S. of Ed., R.I.A., Mem. Acad. St. Petersburg, Berlin, and Copenhagen, Corr. Ins. Fr., etc. etc. 16, *Belgrave-square.*
1830	*Murdoch, Thomas William Clinton, Esq. 8, *Park-street, Westminster; and River-bank, Putney.*
1851	Murray, George, Esq. 5, *Austin Friars.*
1850	*Murray, Capt. the Hon. Henry Anthony, R.N. 4*a*, *Albany-chambers, Piccadilly.*
1844	*Murray, James, Esq. *Foreign Office; and* 36, *Queen Anne-street.*
1830	Murray, John, Esq., F.G.S. 50, *Albemarle-street; and Newstead, Wimbledon.*
1853	Napier, Colonel George Thomas Conolly, C.B., Assistant Adjutant-General. *Canada.*
1835	*Neeld, Joseph, Esq., M.P., F.S.A., F.L.S. 6, *Grosvenor-square; Grittleton, Wilts; and Kelston-park, Somerset.*
1837	*Newnham, William, Esq., F.R.A.S., M.R.I. *Oriental Club; and Englefield-green, Egham.*
1846	Nicolay, Rev. Ch. Grenfell, Librarian and Prof. of Geography, King's Coll. 8, *Grove-end-road, St. John's-wood.*
1836	Nicolson, Sir Frederick William Erskine, Bart., Capt. R.N. *H.M.S. 'Pique,' Pacific.*

Year of Election.	
1854	Norman, Henry, Esq. 11, *Henrietta-street, Cavendish-square.*
1830	540*Northumberland, Algernon Duke of, Rear-Admiral, K.G., F.R.S., F.S.A., Pres. R.I. *Northumberland-house, Charing-cross; Alnwick and Keilden Castles, Northumberland; Werrington-park, Cornwall; Sion-house, Middlesex; and Stanwick-park, Yorkshire.*
1830	Ogle, Admiral Sir Charles, Bart. 64, *Eaton-place.*
1853	Oliveira, Benjamin, Esq., M.P., F.R.S. 8, *Upper Hyde-park-street.*
1845	*Ommanney, Capt. Erasmus, R.N., F.R.A.S. *H.M.S. 'Hawke.'*
1838	*Ommanney, H. M., Esq. 40, *Charing-cross.*
1853	Osborn, Sir George Robert, Bart. *Travellers' Club; and Chicksand-priory, Bedfordshire.*
1852	Oswell, William Cotton, Esq. 3, *Berkeley-square.*
1854	Ouchterlony, James, Esq. *Madras.*
1830	*Outram, Sir Benjamin Fonseca, M.D., R.N., C.B., F.R.S. 1, *Hanover-square; and Kilham, Yorkshire.*
1844	*Overstone, Samuel Lord, M.A., F.S.S., M.R.I. 2, *Carlton-gardens; and Wickham-park, Surrey.*
1854	550 Oxenham, Rev. William, M.A. *Harrow, Middlesex.*
1846	*Oxford, Samuel Wilberforce, Bishop of, F.R.S., F.S.A. 26, *Pall-mall; Cuddesden Palace, Wheatley, Oxfordshire; and Lavington, Sussex.*
1852	Packman, Fred. W. S., Esq., M.D. 12, *Clarges-street, Piccadilly; and Cupton-hall, Chesterfield, Derbyshire.*
1853	Pakington, Right Hon. Sir John Somerset, Bart., M.P., F.S.S. 41, *Eaton-square; and Westwood-park, Droitwich, Worcestershire.*
1838	*Palmer, Samuel, Esq. 20, *Old square, Lincoln's-inn.*
1850	Palmerston, Henry John, Lord Viscount, M.P., G.C.B., F.R.S., &c. 144, *Piccadilly; and Broadlands, Romsey, Hants.*
1849	*Parish, Lieut. John E., R.N. *H.M.S. 'Sharpshooter,' S.E. Coast of America.*
1833	*Parish, Sir Woodbine, K.C.H., F.R.S., &c. *Quarry-house, St. Leonard's-on-Sea.*
1852	Parker, J. Walter, Esq., jun. 445, *West Strand.*
1830	*Parker, Thomas Lister, Esq., F.R.S., F.S.A. *Tabley-house, Knutsford.*
1850	560†Parkes, Harry, Esq. *China.*
1850	*Parkyns, Mansfield, Esq., F.Z.S. *Arthur's Club, St. James's-street; and Woodborough-hall, Southwell.*
1854	Parr, Thomas Clements, Esq., M.A. 21, *West-mall, Clifton.*
1830	*Parry, Sir William Edward, D.C.L., F.R.S., Rear-Admiral, Lieut.-Governor Greenwich Hospital. *Greenwich.*
1830	*Pasley, Sir Charles William, K.C.B., R.E., F.R.S., Lieut.-Gen. 12, *Norfolk-crescent, Hyde-park.*
1854	Paulson, Commander John T., R.N. *Army and Navy Club.*
1847	*Paynter, William, Esq., F.R.A.S. 21, *Belgrave-square; and Caraborne-house, Richmond, Surrey.*
1853	Peacock, George, Esq. 5, *Craven-hill-gardens, Hyde-park.*
1853	*Peckover, Alexander, Esq. *Wisbeach.*

Year of Election.	
1852	Peel, Capt. William, R.N. *Whitehall-gardens; and H.M.S. 'Diamond.'*
1846	570*Pelly, Sir John Henry, Bart. *Upton, Essex.*
1830	*Penn, Richard, Esq., F.R.S. *Whitehall.*
1830	*Pepys, William Hasledine, Esq., F.R.S., F.L.S. 11, *Earl's-terrace, Kensington.*
1853	Percy, Colonel the Hon. Hugh M. (Guards). 8, *Portman-square; and Crimea.*
1846	Petermann, Augustus, Esq., Hon. Memb. Berl. Geog. Soc.
1854	Phelps, William, Esq. 18, *Montagu-place, Russell-square.*
1843	Phillimore, John George, Esq., Q.C., M.P. 19, *Old-square, Lincoln's-inn; and* 21, *Chester-square.*
1830	*Phillipps, Sir Thomas, Bart., M.A., F.R.S., F.S.A. *Athenæum Club; and Middle-hill, Broadway, Worcestershire.*
1854	Phillips, Lieut.-Colonel B. Travell. *Senior United Service Club.*
1854	Phillips, T. Bacon, Esq.
1852	580 Pike, Lieut. John W., R.N. 26, *Burlington-street; and H.M.S. 'St. Jean d'Acre.'*
1855	Pilkington, James, Esq., M.P. *Reform Club; and Blackburn.*
1852	*Pim, Bedford C. T., Lieut. R.N. *H.M.S. 'Impregnable.'*
1834	*Pocock, John Innis, Esq. 19, *Chester-terrace, Regent's-park; and Puckrup-hall, Tewkesbury.*
1837	*Pollington, John Charles George, Viscount, F.R.A.S. *Meshley-park, near Leeds.*
1853	Pollock, Sir George, G.C.B., Lieut.-General. *Clapham-common, Surrey.*
1835	*Ponsonby, Hon. Frederick G. B. 3, *Mount-street, Grosvenor-square.*
1853	Porter, Edward, Esq. 43, *Pall-mall.*
1830	*Portlock, Colonel Joseph Ellison, R.E., F.R.S. *Woolwich.*
1852	Powell, Lewis, Esq., M.D., F.S.A., &c. *Mauritius.*
1854	590 Power, John Arthur, Esq., M.A. 52, *Burton-crescent.*
1854	Power, John, Esq. *Panama; and* 25, *Sussex-place, Regent's-park.*
1847	Pratt, F. T., Esq., D.C.L. 2, *College, Doctors'-commons.*
1853	Price, Jas., Esq., M.D., F.R.C.S., &c. *Gloucester-cottage, Effra-road, Brixton.*
1852	Price, James Glenie, Esq., Barrister-at-Law. 14, *Clement's-inn.*
1845	Prinsep, Henry T., Esq. *Little Holland-house, Kensington.*
1852	Prout, John William, Esq., M.A., Barrister-at-Law. *Newsdon-house, Willesdon, Middlesex.*
1852	Pullen, Commander William J. S., R.N. *H.M.S. 'North Star.'*
1845	Puller, Christopher William, Esq. *Youngsbury, Ware, Herts.*
1853	Pusey, Philip, Esq., D.C.L., F.R.S. 35, *Grosvenor-square; and Pusey-house, near Faringdon, Berks.*
1854	600*Quin, Captain Michael, R.N. 18, *Albion-villas, Albion-road, Islington.*
1850	Radstock, Granville George, Lord, Vice-Admiral, C.B. 26, *Portland-place.*
1853	Rae, Dr. John. *Hudson Bay Company.*
1851	*Ramsay, Capt. William, R.N., F.R.A.S. *H.M.S. 'Hogue.' Junior United Service Club; and* 23, *Ainslie-place, Edinburgh.*
1854	Ramsay, Sir James, Bart. *University Club; and Barnet-house.*
1839	Raper, Henry, Esq., R.N., F.R.A.S. 6, *Princess-terrace, Princess-gate, Hyde-park.*

Year of Election.	
1848	Ravenshaw, E. J., Esq., M.R.A.S. 39, *Conduit-street.*
1844	*Rawlinson, Lieut.-Col. Henry Creswicke, C.B., D.C.L., F.R.S. *Bagdad.*
1838	Rawson, Rawson W., Esq. *Canada.*
1852	Raymond, Venerable Archdeacon of Durham. *Athenæum Club; and Durham.*
1838	610*Reid, Sir William, R.E., K.C.B., Major-Gen. *Governor of Malta.*
*1845	Rendel, James Meadows, Esq., F.R.S. 8, *Great George-street, Westminster; and* 10, *Kensington-palace-gardens.*
1830	*Rennie, George, Esq., F.R.S., Hon. M.R.I.A. 21, *Whitehall-place; and Holmwood-lodge, near Dorking, Surrey.*
1834	*Rennie, M. B., Esq. 21, *Whitehall-place.*
1830	*Rennie, Sir John, F.R.S., F.S.A. 5*a*, *Spring-gardens.*
1830	*Renouard, Rev. George Cecil, B.D., M.R.A.S. *Swanscombe-rectory, near Dartford.*
1830	*Renwick, Lieutenant, R.E.
1853	Reynolds, Joseph, Esq. *De-la-Bere, Pangbourne, Berks.*
1830	*Richardson, Sir John, R.N., M.D., C.B., F.R.S., L.S. *Haslar-hospital, Gosport.*
1830	*Ripon, Frederick John, Earl of, F.R.S. 1, *Carlton-gardens; Nocton, Sleaford, Lincolnshire; and Putney-heath, Surrey.*
1830	620*Robe, Lieut.-Col. Fred. Holt, Dep. Q. M. Gen. *Mauritius.*
1853	Robertson, Peter, Esq. (Staff Surgeon, first class). *Army and Navy Club; and Portsmouth.*
1853	Robinson, Albert, Esq., C.E., F.G.S. 9, *Whitehall-place.*
1830	*Robinson, Captain Charles G., R.N.
1846	Robinson, Murrell R., Esq. *Surveyor-General, Cape of Good Hope.*
1850	*Robinson, Walter F., Esq., R.N. *Junior United Service Club.*
1830	*Rodd, James Rennell, Esq., M.R.I. 40, *Wimpole-street.*
1830	*Roget, Peter Mark, Esq., M.D., F.R.S., F.L.S., F.G.S., M.R.I.A. 18, *Upper Bedford-place, Russell-square.*
1834	*Rose, the Right Hon. Sir George, F.R.S., LL.D. 4, *Hyde-park-gardens; and* 25, *Southampton-buildings, Chancery-lane.*
1830	Ross, Charles, Esq. 60, *Portland-place.*
1844	630*Rosse, William, Earl of, M.A., K.P., Trust. Brit. Mus., F.R.S., F.S.A. *Birr-castle, Parsonstown, King's County, Ireland.*
1839	*Rous, Rear-Admiral the Hon. Henry John. 23, *Grafton-street, Bond-street.*
1830	Rumbold, Charles Edmund, Esq., M.P., F.S.A. 74, *Eccleston-square; and Preston-house, Andover, Hants.*
1830	*Russell, Jesse Watts, Esq., D.C.L., F.R.S., S.A., L.S. *Ham-hall, Staffordshire.*
1830	Russell, Lord John, M.P., F.R.S. 32, *Chesham-place; Pembroke-lodge, Richmond; Endsleigh-house, Devon; and Gart-house, near Callander, N.B.*
1852	Sabine, Col. Edw., R.A., V.P.R.S., F.R.A.S., &c. &c. 13, *Ashley-place, Victoria-street, Westminster; and Woolwich.*
1847	St. Asaph, Thomas Vowler Short, Bishop of. 22, *Wimpole-street; and Palace, St. Asaph.*

Year of Election.	
1840	St. Leger, Anthony Butler, Esq. 10, *Berkeley-square; and* 22, *Baker-street, Portman-square.*
1845	*Salomons, Mr. Alderman David, F.R.A.S. 3, *Great Cumberland-place, Hyde-park; and Broom-hill, near Tunbridge Wells.*
1835	*Sandwith, Major-Gen. William, E.I.C.S., F.R.A.S. *Oriental Club.*
1852	640 Saumarez, Commander Thomas, R.N. *Green Hill, Barnet.*
1846	Saunders, Trelawney W., Esq. 31, *Torriano-terrace, Kentish-town.*
1838	Scarlett, Major-General the Hon. J. Yorke. *Crimea.*
1851	Scarlett, Capt. the Hon. W. F., Scots Fusilier Guards.
1854	Sclater, George, Esq., M.A. 15, *New-street, Spring-gardens.*
1840	*Scrivener, J. Frederick Pike, Esq. 20, *Bryanston-square; Ramridge-house, near Andover, Hants; and Sibton-abbey, Yoxford, Suffolk.*
1830	*Sedgwick, the Rev. A., Hon. M.R.I.A., Woodwardian Lecturer, M.A., F.R.S., F.R.A.S. *Athenæum Club; and Cambridge.*
1853	Sevin, Charles, Esq. 11, *Cullum-street, City.*
1853	Sewell, Henry, Esq. 51, *Old Broad-street, City; and Stamford-hill.*
1853	Sexton, George, Esq., M.D., Ph. Dr. 25, *Chester-place, Kennington-cross.*
1853	650*Seymour, Henry Danby, Esq., M.P. 39, *Upper Grosvenor-street; Knoyle-Hindon, Wilts; and Glastonbury, Somersetshire.*
1855	Seymour, Sir Geo. F., K.C.B., G.C.H., Vice-Admiral. 115, *Eaton-square.*
1854	Shadwell, Captain Charles F. A., R.N., C.B. *Army and Navy Club.*
1846	Sheffield, George Augustus Frederick Charles, Earl of, F.Z.S. 20, *Portland-place; and Sheffield-park, Sussex.*
1850	†Shillinglaw, John J., Esq. *Australia.*
1852	Silk, John Alexander, Esq. 1, *Brunswick-square; and Southwood-lane, Highgate.*
1853	Silver, William, Esq., Barrister-at-Law. *Addison-road, Kensington.*
1853	Simmons, Edward Robert, Esq., Barrister-at-Law. 4, *Wilton-street, Grosvenor-place.*
1848	Simmons, Lt.-Col. John L. A., R.E. *Railway Department, Board of Trade,* 8, *Whitehall; and Crimea.*
1853	Simpkinson, Lieut. Francis G., R.N. 21, *Bedford-place, Russell-square.*
1836	660*Smith, Edward Osborne, Esq., F.S.A., M.S.S., &c. 24*a*, *Bryanston-square.*
1853	†Smith, George, Esq. *Peru.*
1830	*Smith, James, Esq., F.R.S.L. & E. *Athenæum Club; and Jordan-hill, Glasgow.*
1854	Smith, John, Esq., Memb. Geograph. Soc., Bombay. *Oriental Club.*
1853	Smith, John Harrison, Esq. *Panama.*
1853	Smith, John Henry, Esq. *Purley, Surrey.*
1836	*Smith, Lieut.-Col. James Webber, 95th Regt. *Weedon-barracks.*
1838	*Smith, Octavius Henry, Esq., F.S.S. 46, *Bedford-square; and Wimbledon-common.*
1830	*Smith, Sir Charles Felix, K.C.B., Lieut.-Gen. 7, *Onslow-square, Brompton; and Pendyffryn, Conway, North Wales.*
1841	*Smith, Thomas, Esq.
1855	670 Smith, W. H., Esq., Barrister-at-Law. *Burrowsfield, Swansea.*

Year of Election.	
1837	*Smyth, Captain William, R.N. *Parkstown, near Poole, Dorset.*
1830	*Smyth, Rear-Admiral William Henry, K.S.F., D.C.L., F.R.S., V.P.S.A., F.R.A.S., Hon. M.R.I.A., Corr. Inst. Fr., &c. &c. *Athenæum Club; and St. John's-lodge, near Aylesbury, Bucks.*
1850	*Smythe, Capt. William J., R.A. *Woolwich.*
1853	Solly, Prof. Edward, F.R.S., F.S.A., &c. 15, *Tavistock-square; and Parkstone, near Poole.*
1839	*Somers, Charles, Earl. 7, *Carlton-house-terrace; Eastnor-castle, Herefordshire; and Reigate-priory, Sussex.*
1854	Somerset, Granville R. H., Esq., Barrister-at-Law. 10, *Farrar-buildings, Temple.*
1845	*Sotheby, Lieut.-Col. Frederick Samuel, C.B., F.R.A.S. 3, *Portugal-street, Mount-street.*
1853	Southey, Henry Sedgfield, Esq., Barrister-at-Law. *Athenæum Club.*
1830	Spencer, Frederick Earl, Rear-Admiral, K.G., C.B., M.R.I. 27, *St. James's-place; and Althorp-park, Northamptonshire.*
1830	680*Spottiswoode, A., Esq. *New-street-square, Fetter-lane.*
1853	Stanford, Edward, Esq. 6, *Charing-cross.*
1853	*Stanley, Edward Henry, Lord, M.P., D.C.L. 31, *Albany.*
1830	*Staunton, Sir George T., Bart., D.C.L., F.R.S., F.S.A. 17, *Devonshire-street, Portland-place; Clydagh-house, Galway; and Leigh-park, Havant, Hants.*
1836	Staveley, Thomas, Esq. (Foreign Office). 20, *Earl's-terrace, Kensington.*
1850	Steele, Lieut.-Colonel Thomas M., Coldstream Guards. *Military Secretary, Crimea;* 21, *Upper Brook-street.*
1830	*Stephen, Sir George.
1854	Stevens, Frederic Perkins, Esq. *Melbourne, Australia.*
1841	Stevenson, Thomas, Esq., F.S.A. 37, *Upper Grosvenor-street.*
1845	*Stokes, Capt. John Lort, R.N. 14, *Westbourne-terrace.*
1852	690 Strachey, Capt. Henry, Bengal Inf. 52, *Woburn-place, Russell-square.*
1851	Strachey, Capt. Rich., Bengal Eng. *Bengal.*
1853	Strousberg, Bethel Henry, Esq. 68, *Mornington-road, Regent's-park.*
1853	Strutt, George H., Esq., F.R.A.S. *Milford, near Derby.*
1853	*Strzelecki, Count P. E. de, F.R.S. 20*b*, *Saville-row.*
1834	*Sturge, Thomas, Esq. *New Kent-road.*
1833	Sturt, Capt. Charles, F.L.S. *St. Edward's, Tivoli, Cheltenham.*
1853	Stutfield, William, Esq. 15, *Gloucester-terrace, Westbourne-terrace.*
1853	†Sutherland, Peter C., Esq., M.D. *Natal.*
1840	*Sutherland, Robert, Esq.
1836	700*Swinburne, Capt. Charles H., R.N. 18, *Grosvenor-place; and Capheaton, near Newcastle-upon-Tyne.*
1851	Sykes, Colonel William Henry, F.R.S., Hon. M.R.I.A. 47, *Albion-street, Hyde-park.*
1837	*Symonds, Captain Sir William, R.N., K.H., F.R.S. *Yarmouth, Isle of Wight.*
1852	Synge, Captain Millington H., R.E. *West Indies.*

Year of Election.	
1852	Tagart, Courtenay, Esq. *Reform Club; and Paris.*
1854	*Taylor, John Stopford, Esq., M.D. 23, *Springfield, St. Anne-street, Liverpool.*
1830	*Taylor, Richard, Esq., F.S.A., F.L.S., &c. *Red Lion-court, Fleet-street.*
1855	Tennent, Sir J. Emerson, K.C.S. *Secretary to the Board of Trade;* 66, *Warwick-square, Pimlico; and Temho-house, Co. Fermanagh, Ireland.*
1855	Tennent, Wm. W. Emerson, Esq. 66, *Warwick-square, Pimlico.*
1830	*Thatcher, Colonel, E.I.C.
1854	710 Thomas, Henry Harrington, Esq. *Lansdowne-crescent, Bath.*
1854	Thomas, James, Esq. *Lidlington-park, near Hamersthorn, Beds.*
1854	Thompson, William C., Esq. 25, *Half-Moon-street, Piccadilly.*
1848	*Thomson, J. Turnbull, Esq. *Singapore.*
1854	*Thomson, Thomas, Esq., M.D. *Calcutta.*
1839	Thornton, Edward, Esq. *East India House.*
1846	Thornton, George, Esq., C.E. *Grange, Skipton, Yorkshire.*
1847	Thornton, Rev. Thomas Cooke, M.A., M.R.I. *Brock-hall, Northamptonshire.*
1854	Thorold, Henry, Esq. 35, *Gloucester-square.*
1854	Thorp, Jonathan, Esq. *Blackheath.*
1853	720 Tilleard, James, Esq. *Kneller-hall, Twickenham.*
1834	*Tindal, Commander Charles, R.N. *Branch Bank of England, Birmingham.*
1846	*Tindal, Charles John, Esq. *New South Wales.*
1839	*Tinne, John A., Esq. *Parthenon Club; and Liverpool.*
1853	Tomline, George, Esq., M.P. *Carlton-house-terrace.*
1853	*Tomline, George Taddy, Esq., F.S.A. *Ash, near Tanderich, Kent.*
1855	Tonna, Lewis H. J., Esq. *Secretary, United Service Institution, Whitehall-yard.*
1835	*Tooke, Arthur William, Esq., M.A. 39, *Bedford-row; and Pinner-hill-house, near Watford, Middlesex.*
1846	*Towry, George Edward, Esq. 7, *Brook-street, Grosvenor-square; and Harewood-lodge, Sunning-hill, Berks.*
1830	*Trevelyan, Sir Walter Calverly, Bart., M.A., F.S.A., F.L.S., &c. *Athenæum Club; Wallington, Morpeth; and Nettlecombe, Somerset.*
1839	730 Trotter, Commodore Henry D., R.N., F.R.A.S. *Commander-in-Chief, Cape of Good Hope Squadron.*
1839	*Truman, Dr. Matthew, F.S.S. 40, *Norland-square, Notting-hill.*
1835	*Tuckett, Frederick, Esq. 36, *Bloomsbury-square.*
1852	Tudor, Ed. Owen, Esq., F.S.A. 46, *Westbourne-terrace.*
1838	*Tuffnell, Right Hon. Henry, M.P. 10, *Great Stanhope-street.*
1834	*Turnbull, Rev. Thomas Smith, F.R.S. *University Club; and Blofield, Norfolk.*
1849	Twiss, Dr. Travers, D.C.L., F.R.S. 19, *Park-lane.*
1854	*Uzielli, Matthew, Esq. *Hanover-lodge, Regent's-park.*
1844	*Vacher, George, Esq. 29, *Parliament-street.*
1845	*Vane, Lord Harry G., M.P. 1, *Grosvenor-place-houses.*

Year of Election.	
1849	740 Vaux, William Sandys Wright, Esq., M.A., F.S.A. *British Museum.*
1852	*Vavasour, Sir Henry Mervyn, Bart. *Travellers' Club; and Spaldington-hall, Yorkshire.*
1837	*Verney, Major Sir Harry C., Bart., F.R.A.S. *Travellers' Club; and Claydon-house, Bucks.*
1852	Verulam, James Walter, Earl of. *Gorhambury, near St. Alban's; Barry-hill, Surrey; and Messing-hall, Essex.*
1830	Vetch, Captain James, R.E., F.R.S. *Admiralty.*
1830	*Vidal, Rear-Admiral A. T. E.
1840	†Vigne, G. T., Esq. *The Oaks, Woodford.*
1838	*Vyvyan, Sir Richard Rawlinson, Bart., M.P., F.R.S., M.R.I. 2, *Grafton-street, Bond-street; and Trelowarren, Cornwall.*
1846	†Wade, Sir Claude Martine, C.B., Major-Gen.
1852	Wade, Captain Mitchell B.
1853	750*Wagstaff, William Racster, Esq., M.A., M.D. *Thornton-house, Clapham-road.*
1846	Walker, James, Esq., C.E., F.R.S. 23, *Great George-street, Westminster.*
1830	Walker, John, Esq., Hydrog. Hon. E.I.C. 9, *Castle-street, Holborn.*
1853	Walker, Captain William Harrison, H.C.S. 103, *Gloucester-terrace.*
1854	†Wallace, Alfred Russell, Esq. *Indian Archipelago.*
1853	Walter, Henry Fraser, Esq. 68, *Russell-square.*
1850	*Warburton, Henry, Esq., M.A., F.R.S., F.L.S. 45, *Cadogan-place, Sloane-street.*
1853	*Ward, George, Esq. 40, *Devonshire-place, Portland-place.*
1850	Warre, John Ashley, Esq., F.R.S. 54, *Lowndes-square; and West-cliff, Ramsgate.*
1836	Washington, Captain John, R.N., F.R.S. *Admiralty; and Wood-street, Woolwich.*
1852	760 Watkins, John, Esq., F.R.C.S., F.S.A. 2, *Falcon-square, Aldersgate-street.*
1853	Watts, J. King, Esq. *St. Ives, Huntingdonshire.*
1853	Wear, Robert George William, Esq., Ph. D., L.C.P. *Shooter's-hill, Kent.*
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CELEBES.—Kaart van de West Kust van Celebes van af Kékéan tot en met de Baai van Paré Paré, trigonometrisch opgenomen met Z. M. Schooner Aruba. Van Wege de Commissie tot Verbetering dei oost Indische Zeekaarten uitgegeven door J. Swart. 2 Sheets. Amsterdam, 1853.

MACASSAR.—Kaart van het Vaarwater benoorden Makasser; Trigonometrisch opgenomen door den Lieut. ter Zee J. von Gogh. Van Wege de commissie tot Verbetering der oost Indische Zeekaarten uitgegeven door Jacob Swart. 2 Sheets. Amsterdam, 1849.
The Chevalier JACOB SWART, of Amsterdam, Corr. F.R.G.S.

NEW ZEALAND, Middle Island. Nelson Anchorages. 1850.

——————— South Island. Banks Peninsula. 1850.
The HYDROGRAPHIC OFFICE.

PLAN de la Côte Septentrionale de Tahiti de la Pointe Vénus à Faaramai. Levé en 1846. Paris, 1852. DÉPÔT GÉNÉRAL DE LA MARINE.

ARCTIC.

Maps, Charts, &c. — *Donors.*

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———————— Behring Strait. Sheet 3. 1853.

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———————— Discoveries in the, to 1852.
JOHN BARROW, Esq., F.R.S., F.R.G.S.

——— Shores of America and part of Asia; from Baffin Bay to Melville Island, and from Behring Strait to Mercy Bay, completing the North-west Passage by Captain M'Clure. By John Arrowsmith. 1853. The AUTHOR.

DAVIS STRAIT.—Cumberland Isle. 1839. JOHN BARROW, Esq., F.R.S., F.R.G.S.

DISCOVERIES in the Arctic Sea, between Baffin Bay, Melville Island, and Cape Bathurst, showing the coasts explored by the officers of the various expeditions in search of Sir John Franklin, by John Arrowsmith. 1 Sheet.
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GREENLAND, West Coast.—Holsteinborg Harbour. 1853.
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NORTH Polar Sea, Chart of the. 1835.

——— West Coast of America, Chart of part of the, from Point Rodney to Point Barrow. By Capt. F. W. Beechey, R.N., F.R.S., F.R.G.S. 1826-27.
JOHN BARROW, Esq., F.R.S., F.R.G.S.

ATLANTIC.

SOUTH ATLANTIC OCEAN. 1853.

———————— Tristan da Cunha Group. 1852. The HYDROGRAPHIC OFFICE.

MISCELLANEOUS.

ENGRAVING of the Arctic Council discussing the plan of search for Sir John Franklin. Framed. 1853. JOHN BARROW, Esq., F.R.S., F.R.G.S.

PLATES of fragments of a Sarcophagus found at Tarragona under the foundations of a very ancient Polygonal Wall. (6 Sheets.)
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1.	Box Chronometer, by Barraud and Lund	825
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6.	Six-inch Reflecting and Repeating Circle.	
7.	Ebony and Brass Chronometer, by Thomas Jones.	
8.	Case of Mathematical and Drawing Instruments.	
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10	Brass Triangular Graduated Charto-meter, by Eitel.	
11.	Brass Box Pocket Compass, 2½-inch needle.	
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19.	Ebony Sextant, with Ivory Limb, 9-inch.	
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24.	Brass Station Pointer, with Lengtheners, by Troughton and Simms.	
*25.	Prismatic Pocket Compass, by Troughton and Simms.	
26.	Marine Barometer, by Troughton and Simms.	
*27.	Thermometrical Boiling Water Apparatus, for Heights.	
28.	Case of Wooden Ruling Scales	
29.	Achromatic Telescope (3½ feet), 2 inches aperture.	
30.	Sliding Tube Do. (3 feet), 1⅝ inches aperture.	
31.	Night, or Comet-Sweeping Telescope, 2 feet focus, and 5 inches aperture.	
32.	Set of Magnets	
†33.	Mountain Barometer, by Troughton and Simms.	
*34.	Two Newman's Improved Iron Cistern Mountain Barometers.	
35.	Another ditto.	
36.	Square-framed Mountain Barometer, by Newman.	
37.	Mountain Barometer, by Troughton and Simms, with Tripod Stand.	
38.	Dipping Instrument.	
39.	Telescope.	
40 and 41.	Two Compasses,	Lent to the late Mr. Duncan, Vice-Consul at Whydah, in 1849, and not returned.
42.	Aneroid Barometer,	

Proceedings of the Royal Geographical Society of London.

SESSION 1853–54.

First Ordinary Meeting, November 14, 1853.

Sir RODERICK I. MURCHISON, Vice-President, in the Chair.

The Rev. Francis Fleming; John Gorman, Esq., M.D.; Edwin Hickey, Esq.; Thomas Malby, Esq.; Lieut.-Col. the Hon. Hugh M. Percy; Lieut. Francis Simpkinson, R.N.; and Edward Stanford, Esq., were elected Fellows.

The Papers read were—

1. Captain Inglefield, R.N., F.R.S., F.R.G.S., on the result of the late Arctic Expeditions, including the Discovery of the North-West Passage by Capt. McClure, R.N.
2. Letter from Capt. McClure to Sir George Back, R.N.

The Chairman having called upon Lieut. Cresswell, of H. M. S. "Investigator," to explain the discoveries made in that ship by Capt. McClure, he pointed out the course of the ship, and briefly related her progress from the Sandwich Islands, through Behring Strait, to the Bay of Mercy in Banks' Land.

The Chairman next adverted to the efforts which were making to do honour to the memory of the late Lieut. Bellot, of the French Navy, and stated that above 1000*l.* had been already received, chiefly from Fellows of the Society.

The attention of the Meeting was finally directed to the handsome donation of Books presented to the Library by Lord Stanley, M.P., F.R.G.S.

Second Ordinary Meeting, November 28, 1853.

Lord COLCHESTER, Vice-President, in the Chair.

John Balfour, Esq.; Lieut.-Col. Fitzhardinge Berkeley; William Bull, Esq.; James C. Burnett, Esq.; Capt. the Hon. W. Coke; William Halliday Conway, Esq.; Lieut. F. A. B. Cranford, R.N.; J. Fayrer, Esq., M.D.; John Griffith Frith, Esq.; Commander Henry Richard Foote, R.N.; Sir Edward Graham, Bart.; Lieut. P. A. Halkett, R.N.; Lord Arthur Hay; Thomas Irving, Esq.; Major H. Lloyd; Francis Le Breton, Esq.; George Mocatta, Esq.; Ashhurst Majendie, Esq.; Benjamin Oliveira, Esq., M.P.; Peter Robertson, Esq.; Christopher Rolleston, Esq.; Henry Danby Seymour, Esq., M.P.; William Silver, Esq.; J. Harrison Smith, Esq.; J. Henry Smith, Esq.; Dr. Peter C. Sutherland, M.D.; George Taddy Tomlin, Esq.; Henry Fraser Walter, Esq.; J. King

Watts, Esq.; Robert George William Wear, Esq.; and Thomas Young, Esq., were elected Fellows.

The Paper read was—

Notes on a Journey into the Balkan, or Mount Hæmus, with a description of the defiles through this celebrated mountain range, and a comparison of the routes of Darius, Alexander, and Diebitch; by Lieut.-General A. Jochmus. Communicated by Sir Roderick I. Murchison. *First Part.*

The Chairman referred to the beautiful Paintings of Scenery and Events in South Africa, by Mr. Thomas Baines, Artist to the Forces under General Somerset, which were exhibited to the Meeting.

Third Ordinary Meeting, December 12, 1853.

Sir RODERICK I. MURCHISON, Vice-President, in the Chair.

Montagu Gore, Esq.; Viscount Ranelagh; and William Stretfield, Esq., were elected Fellows.

The Paper read was—

Notes on a Journey into the Balkan, &c., by Lieut.-General A. Jochmus. *Second Part.*

Particular mention was made of the Charts of the Russian and Turkish Ports in the Black Sea, and of the beautiful Illustrations of Scenes in Ethiopia, drawn by M. J. M. Bernatz, Artist to the British Mission to the Court of Shoa, which had been presented to the Library.

Fourth Ordinary Meeting, January 9, 1854.

Sir CHARLES FELLOWS, Vice-President, in the Chair.

Dr. Travers Cox; John Dower, Esq.; Ernest Haug, Esq.; Wm. Jennings, Esq.; Henry Norman, Esq.; and Dr. Thomas Thomson, were elected Fellows.

The Papers read were—

1. Accounts from the Mission to Central Africa, communicated by Mr. A. Petermann, with Observations in North Africa by Dr. Phil. Vogel, communicated by the Foreign Office.
2. Geographical Explorations in Southern Africa, by Mr. Thomas Baines and others.
3. Account of the Expedition proposed to ascend the Niger and Chadda, by Macgregor Laird, Esq., F.R.G.S.
4. Departure of Dr. E. G. Irving, R.N., F.R.G.S., on his Mission to Western Africa.

The Chairman informed the Meeting, that by the direction of the Council, the Secretary had furnished Dr. Irving with a Chronometer and other Instruments for his use in Western Africa.

Fifth Ordinary Meeting, January 23, 1854.

The President, the EARL of ELLESMERE, in the Chair.

Commander E. J. Bedford, R.N.; D. Roberton Blaine, Esq.; John Calvert, Esq.; S. Stewart Dickenson, Esq.; Walter Laurie,

Esq.; Captain R. Methuen; James Ouchterlony, Esq.; R. Granville H. Somerset, Esq.; and Jonathan Thorp, Esq., were elected Fellows.

The Papers read were—

1. Further Accounts from the Mission to Lake Chád, from Corporal Church and Privates Swenny and Maguire, of the Sappers and Miners; and

2. Reports in connection with the proposed Expedition to Northern Australia.

A beautiful sketch of the British Fleet at anchor at Spithead, prior to sailing for the Dardanelles, by O. W. Brierly, Esq., F.R.G.S, was exhibited to the Meeting by Mr. Ackermann.

Sixth Ordinary Meeting, February 13, 1854.

Sir RODERICK I. MURCHISON, Vice-President, in the Chair.

Henry Donkin, Esq.; Wm. Mc Dowell, Esq.; Wm. Phelps, Esq.; John Power, Esq.; Dr. John Arthur Power, M.A.; and Dr. John Stopford Taylor, M.D., were elected Fellows.

The Papers read were—

1. The Cerro de Pasco and its Silver Mines, by J. A. Lloyd, Esq., F.R.S., F.R.G.S., Her Majesty's Chargé d'Affaires in Bolivia, communicated by H. R. H. Prince Albert.

2. Letter from Mr. Amos Scott, of the Royal Sappers and Miners, on Western Australia, communicated by Colonel Portlock, R.E., F.R.G.S.

The Chairman congratulated the Society on the information that a Meeting in favour of the Bellot Testimonial Fund had been held at Bombay, which was presided over by the Governor Lord Elphinstone, supported by the Bishop of Bombay, Sir H. Leake, Commodore Lambert, and many influential persons, both English and Natives.

Seventh Ordinary Meeting, February 27, 1854.

The President, the EARL of ELLESMERE, in the Chair.

Norman Cowley, Esq.; Gamul Farmer, Esq.; Benjamin Ifill, Esq.; J. Hugh Johnson, Esq.; Rev. John Kennedy, M.A.; Lieut.-Colonel Peter Melville; Captain C. F. A. Shadwell, R.N.; A. R. Wallace, Esq.; and Captain A. P. E. Wilmot, R.N., were elected Fellows.

The Papers read were—

1. Successful Ascent of the River Murray, by Capt. Cadell and Governor Sir H. Young, in the "Lady Augusta" steamer, communicated through the Colonial Office.

2. Observations on the proposed North Australian Expedition, by Capt. Sturt.

3. Remarks on the Exploration of North Australia, by Capt. J. Lort Stokes, R.N.

The President announced the publication of the General Index to the second Ten Volumes of the Journal, as well as the 23rd Volume of the

Society's Transactions, and congratulated the Society upon the increased size and value of this Volume, and observed, that having read it very attentively, he was happy to say that he considered it perhaps the most valuable Volume that had been published by the Society, containing as it did eleven Maps, with other illustrations. His Lordship finally mentioned that, by the direction of the Council, he had recommended to the Duke of Newcastle the employment, besides Captain Stokes, of Captain Sturt, Dr. Thomas Thomson, and Mr. Thomas Baines, to accompany the proposed North Australian Expedition; and had also expressed a hope that Mr. J. S. Wilson might be employed as one of the party in the capacity of a Geologist and Mineralogist.

Eighth Ordinary Meeting, March 13, 1854.

The President, the EARL of ELLESMERE, in the Chair.

Sir John Bowring, LL.D.; Lieut. F. Brine, R.E.; and Charles Fraser, Esq., were elected Fellows.

The Papers read were—

1. Extracts of a Letter from Capt. Spratt, R.N., H. M. S. "Spitfire," Smyrna, on the West part of the Island of Crete, communicated by Colonel Leake, F.R.G.S.

2. Report on the Russian Caravan Trade with China, by Harry Parkes, Esq., F.R.G.S.

3. On the Topography and Geology of Monte Rosa and the surrounding Chain, by M. Adolph Schlagintweit.

The President particularly directed attention to Admiral W. H. Smyth's work on "the Mediterranean;" also to Mr. Wallace's "Rio Negro and the Head Waters of the Amazon," and to the Map of Asia Minor, by Kiepert, which had lately been presented to the Society.

Ninth Ordinary Meeting, March 27, 1854.

Sir RODERICK I. MURCHISON, Vice-President, in the Chair.

Lieutenant (now Commander) Gurney Cresswell, R.N.; J. W. Church, Esq.; J. G. Dodson, Esq.; and Bacon Phillips, Esq., were elected Fellows.

The Papers read were—

1. Letter from Dr. Barth to Dr. Beke, F.R.G.S., dated Timbuctu, September 5 and 29.

2. Method of rapid Field Surveying, as practised in his recent Ascent of the Andes, by J. A. Lloyd, Esq., Her Majesty's Chargé d'Affaires in Bolivia.

3. Notes on the Steppes of the Turkoman and Country S.E. of the Caspian, by the Baron de Bode.

The Chairman finally announced that Her Majesty's Government had granted the sum of 500*l.* per annum to enable the Society to provide itself with Apartments adequate to a public exposition of its Maps and Charts, and thus increase the usefulness of the body. Having read the Official Letter from Sir C. E. Trevelyan to the President, the Earl of Ellesmere, the Chairman adverted to the long period during which the Society had in vain appealed to successive Governments to obtain this boon. Sir Roderick then moved that the thanks of the Society be given to the Earl of Aberdeen and Her Majesty's Government for this Grant, and the Motion having been seconded by Sir Woodbine Parish, was carried unanimously.

Tenth Ordinary Meeting, April 10, 1854.

Sir RODERICK I. MURCHISON, Vice-President, in the Chair.

Robert Blencowe, Esq.; James Nugent Daniell, Esq.; George Dollond, Esq., F.R.A.S.; Rear-Admiral Percy Grace; Rev. W. Oxenham, M.A.; Thomas Clements Parr, Esq.; and Captain Michael Quin, R.N., were elected Fellows.

The Papers read were—

1. Account of an Expedition to the Sources of the Amazon, by J. A. Lloyd, Esq., F.R.S., F.R.G.S., Her Majesty's Chargé d'Affaires in Bolivia.

2. Variation of the Magnetic Needle at Aden, by Capt. S. B. Haines, I.N., communicated by the Hon. East India Company; and

3. Physical Geography of the Red Sea, by Dr. G. Buist, F.R.G.S.

Eleventh Ordinary Meeting, April 24, 1854.

Sir RODERICK I. MURCHISON, Vice-President, in the Chair.

Don José Antonio Barros; George Ferguson Bowen, Esq.; Fred. D. Hartland, Esq.; and Joseph Hume, Esq., M.P., were elected Fellows.

The Paper read was—

1. Official Report on the Isthmus of Darien, by Commander J. C. Prevost, of H. M. S. "Virago," communicated through Sir Roderick I. Murchison.

The attention of the Meeting was especially called to the presentation of the new edition of the "Physical Atlas," by A. K. Johnston, Esq., F.R.G.S., and to the Maps presented to the Society by the Chevalier J. Swart, of Amsterdam, Corresponding F.R.G.S.

Twelfth Ordinary Meeting, May 8, 1854.

Sir RODERICK I. MURCHISON, Vice-President, in the Chair.

Acton Ayrton, Esq.; John Smith, Esq.; and Captain Thomas Wilson, R.N., were elected Fellows.

The Papers read were—

1. Observations on the Territory of Burica, in the Province of Chiriqui, by J. H. Smith, Esq., of Panama, F.R.G.S.

2. Tour up the River Gambia beyond the falls of the Barraconda, by Lieut.-Colonel Luke Smyth O'Connor, Governor, communicated by the Colonial Office.

ANNIVERSARY MEETING, 1 P.M., MAY 22, 1854.

(Held at 21, Regent Street.)

The President, the EARL of ELLESMERE, in the Chair.

The Minutes of the previous Meeting having been read and confirmed, the Regulations respecting the Anniversary Meetings were read, when the President appointed John Brown and Trelawney Saunders, Esqs., Scrutineers for the Ballot.

George Brand, Esq., M.A., H.M. Vice-Consul in the Province of Angola, S. W. Africa; Wm. Frederick De la Rue, Esq.; Andrew Gammell, Esq.; Peter Hardy, Esq., M.A., F.R.S.; Lieut.-Colonel Travell Phillips; George Sclater, Esq., M.A.; and Commander W. C. Thompson, were proposed as Candidates for election at the next Meeting.

The Report of the Council, with the Balance-sheet for 1853, and the Estimates for 1854, were read and adopted. The President then delivered the Founder's Medal to Sir Roderick I. Murchison, on behalf of Rear-Admiral William Henry Smyth, "for his numerous valuable Maritime Surveys, and for his recently published able work on the Mediterranean;" the Patron's or Victoria Medal to Sir George Back, as the representative of Capt. Robert J. Le Mesurier McClure, R.N., for his Discoveries in the Arctic Regions, more especially that of the North-West Passage (*see* p. lxxvii.). The Anniversary Address having been next read, a vote of thanks was unanimously passed, with a request that the President would allow the Address to be printed.

At the conclusion of the Ballot, the Scrutineers reported that the changes recommended by the Council had been adopted, and the President accordingly announced that the following were duly elected:—

President.—The Right Honourable the Earl of Ellesmere, K.G., D.C.L., F.S.A., F.R.A.S., &c. &c. &c.

Vice-Presidents.—Sir Roderick I. Murchison, G.C.St.S., M.A., D.C.L., F.R.S., &c. &c.; Sir Charles Fellows; Rear-Admiral Lord Colchester, R.N., D.C.L.; Sir George Back, R.N., D.C.L., F.R.S.

Treasurer.—Robert Biddulph, Esq.

Trustees.—Sir Geo. T. Staunton, Bart., F.R.S.; W. R. Hamilton, Esq., F.R.S.

Honorary Secretaries.—Sir Walter C. Trevelyan, Bart., M.A., and Thomas Hodgkin, Esq., M.D., &c.

Council.—John Arrowsmith, Esq.; Rear-Admiral Sir F. Beaufort, K.C.B., F.R.S.; Rear-Admiral Frederick W. Beechey, F.R.S.; Vice-Admiral William Bowles, C.B.; Right Hon. Sir David Dundas; Lieut.-Col. G. Everest, B.A., F.R.S.; Francis Galton, Esq.; G. Bellas Greenough, Esq., F.R.S.; W. J. Hamilton, Esq., Pres. G.S.; Sir Henry Holland, Bart., M.D., F.R.S.; Joseph Hume, Esq., M.P., F.R.S.; Richard Monckton Milnes, Esq., M.P.; Mansfield Parkyns, Esq., F.Z.S.; Lieut.-General Sir George Pollock, G.C.B.; Lieut.-Colonel J. E. Portlock, R.E., F.R.S.; the Earl of Sheffield; E. Osborne Smith, Esq., F.S.A.; Lord Stanley, M.P., D.C.L.; Thomas Staveley, Esq. (Foreign Office); Rev. W. Whewell, D.D., M.A., F.R.S.; Sir J. Gardner Wilkinson, D.C.L., F.R.S.

The thanks of the Meeting having been next voted to the retiring Vice-President and Members of the Council, as well as to the Auditors and Scrutineers, the President finally directed the attention of the Meeting to the usual Anniversary Dinner, and the Meeting adjourned at 4 P.M.

Thirteenth Ordinary Meeting, June 12, 1854.

Sir RODERICK I. MURCHISON, Vice-President, in the Chair.

W. M. Beaufort, Esq.; George Brand, Esq., M.A.; F. Calvert, Esq., Q.C.; W. F. De la Rue, Esq.; H. C. Eiffe, Esq.; Andrew Gammell, Esq.; Peter Hardy, Esq., M.A., F.R.S.; Lieut.-Colonel R. Phillips; Sir James Ramsay, Bart.; George Sclater, M.A.; Commander W. C. Thompson; and John Yeats, Esq., were elected Fellows.

The Papers read were—

1. Late visit to Medina and Mecca, made by Lieut. R. Burton, of the Indian Army, with route from Yambu, on the Red Sea, condensed by Sir Gardner Wilkinson.

2. Journey from Cairo to Jerusalem, *viâ* Suez, Mount Sinai, Akabá, and Hebron, by the late Professor George Wallin, of Finland, translated by Dr. Shaw.

3. Further Explorations in Central Africa, as far as 14° 10′ 52″ S. lat., and 23° 35′ 40″ E. long., by Dr. Livingston, with correct astronomical observations and map of route, communicated through the London Missionary Society and Lieut.-Colonel Steele, F.R.G.S., with Notes from George Frere, Esq., to the Foreign Office, and from Thomas Maclear, Esq., H. M. Astronomer at the Cape, to Sir John Herschel, Bart., communicated through Sir Roderick I. Murchison.

4. The Eastern Territory of Ecuador, the Canton Quijos, the River Napo, and the N. W. Sources of the Marañon, communicated by the Rev. C. G. Nicolay, F.R.G.S.

The Chairman directed attention to the instrument exhibited at the Meeting for measuring the velocity and ascertaining the direction of Sub-surface Currents, by Dr. Buist, of Bombay, F.R.G.S.; to a medieval Map of the World, made in the 15th century, belonging to Sir Thomas Phillips; to the beautiful Map of the southern portion of the Crimea, by Mr. Arrowsmith; and to the paintings exhibited by Mr. John Webster, illustrating the cruise of the Royal Yacht schooner "Wanderer," commanded by the late Mr. Boyd, through the Islands of the Pacific, including the Sandwich, the Kingsmill, and the Solomon Groups. The Chairman announced that the Council had empowered the President to communicate with Sir George Grey, the newly appointed Secretary of State for the Colonies, with the view of expediting the despatch of the Expedition for the Exploration of Northern Australia. Attention was also invited to the Cartographic Collections displayed by Mr. Kohl, relating to the History of the Progress of Discovery in the Western Hemisphere. Previously to the adjournment of the Meeting to November next, Sir Roderick I. Murchison intimated that the Earl of Ellesmere had requested him to state that cards of invitation had been issued to all the Fellows of the Society to attend his Lordship's soirées at Bridgewater House on the 14th and 21st instant.

MISCELLANEOUS.

Twenty-fourth Meeting of the British Association for the Advancement of Science, held at Liverpool, September 20th to 27th, 1854.

(*Section E, Geography and Ethnology.*)

President.—Sir R. I. MURCHISON, D.C.L., F.R.S., F.R.G.S., &c.

Vice-Presidents.—Sir R. H. INGLIS, F.R.G.S.; Col. CHESNEY,

F.R.G.S.; Captain FitzRoy, F.R.G.S.; Dr. Conolly; Dr. Latham, F.R.G.S.

Secretaries.—Dr. Norton Shaw; R. Cull, Esq.; Dr. Ihne; and the Rev. H. H. Higgins.

Committee.—Capt. Allen, R.N., F.R.G.S.; Rev. W. Arthur, M.A.; Rear-Admiral Beechey, F.R.G.S.; John Brown; Charles H. Bracebridge, F.R.G.S.; Robert Chambers; the Earl of Derby, F.R.G.S.; James Fergusson, F.R.G.S.; A. G. Findlay, F.R.G.S.; G. B. Greenough, F.R.G.S.; Dr. Edward Hincks; F. Hindmarsh, F.R.G.S.; Dr. Hodgkin, F.R.G.S.; Rev. Dr. Hume; J. B. Jukes; Rev. H. W. Kemp; Judge Kennedy; Dr. John Lee, F.R.G.S.; Anthony St. Leger, F.R.G.S.; Joseph Locke, M.P., F.R.G.S.; Lord Londesborough, F.R.G.S.; Joseph Mayer; Richard Monckton Milnes, M.P., F.R.G.S.; Rev. C. G. Nicolay, F.R.G.S.; Dr. M'Nicoll; Sir B. Outram, C.B., F.R.G.S.; E. C. Ravenshaw, F.R.G.S.; Dr. Reid; Admiral Sir John Ross; Col. Sabine, F.R.G.S.; Rev. Dr. Scoresby; H. Danby Seymour, M.P., F.R.G.S.; Capt. W. N. Smyth, R.A., F.R.G.S.; Colonel Sykes, F.R.G.S.; W. D. Saull; J. A. Tinne, F.R.G.S.; John Towson; J. King Watts, F.R.G.S.; Thomas Wright, M.A.; and Joseph B. Yates, F.R.G.S.

The Papers read were—

1. *Australian Expedition.*—Communications from Captain Charles Sturt, F.R.G.S., Dr. J. W. F. Blundell, and Mr. J. S. Wilson, communicated by the Royal Geographical Society.

2. *Richard Cull.*—A Description of three Esquimaux, lately in London.

3. *H. Danby Seymour, M.P., F.R.G.S.*—Extracts from the MS. Notes of Travels of General Fevrier, in Central Asia, from Teheran to Herat, Balkh, Candahar, and along the course of the Helmund, and round the Lake Sistan.

4. *William Freund, LL.D.*—Notes on the Etruscan Question.

5. *A. G. Findlay, F.R.G.S.*—On Arctic and Antarctic Currents in connexion with the Expedition of Sir J. Franklin.

6. *Dr. Sutherland, F.R.G.S.*—On Glaciers in the Arctic Regions, communicated by Sir R. Murchison.

7. *Thomas Wright, M.A.*—On some remains of an early people in the south-eastern corner of Yorkshire.

8. *Rev. Dr. Hume.*—Ethnology of the Liverpool District, with Notices of the Hoylake Antiquities.

9. *Captain Samuel Gale* (Merchant Service).—On the shortest Routes to South Australia.

10. *Mr. John Towson*, of the Local Marine Board.—On modifications of Great Circle Sailing.

11. *J. B. Davies, F.S.A.*—On the Forms of Ancient British Crania.

12. *East Africa.*—Extracts of a Letter addressed to the Church Missionary Society, dated Kisuludim in Rabbai, by Rev. J. Rebmann, communicated by the Royal Geographical Society.

13. *Central Africa.*—Extract of a Letter to the Rev. A. Tidman,

D.D., dated Sekeletu, 24th September, 1853, from the Rev. Dr. Livingston, communicated by the Royal Geographical Society.

14. *West Africa.*—Despatch from Acting-Consul Gabriel to Lord Clarendon, announcing the arrival of Dr. Livingston at Loando, West Coast of Africa, communicated by the Royal Geographical Society.

15. *H. Danby Seymour, M.P., F.R.G.S.*—On the Caucasus and parts of the Crimea.

16. *Richard Cull.*—On the Ethnological value of the Results of Philological Inquiry.

17. *Captain W. Allen, R.N., F.R.G.S.*—Remarks on some Levels taken in Jerusalem with the Aneroid.

18. *James Fergusson, F.R.G.S.*—On the Site of the Holy Sepulchre at Jerusalem.

19. *T. Wright, M.A.*—On the early Ethnology of Britain.

20. *Joseph Brooks Yates, F.R.G.S.*—On the Estuary of the River Mersey, and the hazardous and uncertain approaches to the Port of Liverpool.

21. *Joseph Boult.*—Sectional Diagrams, illustrative of Changes in the bed of the River Mersey and its approaches, with reference to a diagram.

22. *George Rennie, F.R.S., F.R.G.S.*—Hydrographical Remarks on the Improvements of the Port of Liverpool.

23. *James Kennedy.*—Question of the Lost Tribes of Israel.

24. *Dr. Hamilton, M.D.*—Remarks on Lake Anlaja and its drainage, in the Desert of Caranjas, in Bolivia.

25. *Dr. Phil. Bleek, of Bonn.*—Remarks on certain South African Languages.

26. *Dr. Latham.*—On the Non-Russian Populations of European Russia.

27. *Rev. C. G. Nicolay.*—On the Eastern Territories of the State of the Ecuador and the River Napo.

28. *Dr. Geo. Wallin, of Finland.*—Travels in Arabia. Translated and communicated by Dr. Norton Shaw.

Among the recommendations adopted by the General Committee of the Liverpool Meeting, as more or less connected with Geography, were—the continuance of the grant of 15*l.* for providing a large Outline Map of the World; a vote of thanks for the establishment by Government of the Meteorological Department of the Board of Trade, under Capt. FitzRoy, R.N., F.R.S., F.R.G.S.; the appointment of a Committee for the purpose of making a Report on the Channel of the river Mersey; the appointment of a Committee to communicate with the Duke of Newcastle on the desirability of accelerating the departure of the North Australian Expedition; an application for an early publication of the Heights of Ground determined by the Trigonometrical Survey, the levels of the Sea, which are the base of the observations, and the reasons which have guided the selection of the *places* where the *Sea*-levels were taken.

The next meeting of the British Association will be held at Glasgow.

PRESENTATION

OF THE

GOLD MEDALS

AWARDED TO REAR-ADMIRAL WILLIAM HENRY SMYTH AND TO CAPTAIN ROBERT J. LE M. M'CLURE, R.N.

You have gathered from our Council Report that our Founders' Medal has been awarded to an active member of our Society, Rear-Admiral William Henry Smyth. If it were necessary for me to undertake anything in the nature of a vindication of this award, I might be tempted to enter at somewhat Homeric length into the Odyssea of this distinguished surveying officer's professional career. It would, however, puzzle Mr. Arrowsmith, who, at our evening meetings, kindly points out with his wand, "describit radio," the paths of travellers by sea or land, to trace on the Mediterranean chart the courses which Admiral Smyth has steered, the positions which he has laid down, and what is of scarcely less consequence and convenience to the navigator, the fallacies he has exposed, during years of toil and danger. It must be a satisfaction to him, which no public tribute can much enhance, to feel that no man living has contributed more to make safe and passable that highway of nations which for legitimate purposes is the property of all, but which, since the time of Alfred, has been the peculiar path of England to wealth, to eminence, and to glory. He knows also that when he at last laid down the instruments which he had used so well, he did but resign them to hands which his instruction had rendered able as his own—

"Plants of his hand, and children of his care"—

to such men as FitzRoy, Beechey, Raper, Owen Stanley, and an old friend of my own, well known to Mediterranean travellers and navigators as Graves of the Beacon. The father of English marine surveying has good reason to be proud of his children. Nor when he left the field to them was his an idle retirement. He has given to this Society from its origin the benefit of his assistance to its councils and its vigorous superintendence in the chair. He has cultivated for its own sake that noble science of Astronomy which he had turned to so much practical account, with a zeal and success which have won him an European reputation, and a name familiar to the observatories of

the world. He has lately made accessible to the general reader the results of his labours in the Mediterranean, condensed in the valuable work which is by this time probably in the hands of most of my present audience. If I add that to such objects as these he has devoted a large expenditure from his private means, exclusive of all Government support, I shall have said much, but shall have left much unsaid which I might allege in vindication, were it needed, of this award of our Founders' Medal. His engagements have not allowed him to receive it in person, but I have the pleasure to place it in the hands of an old friend and intelligent appreciator of his merits, Sir Roderick Murchison, who has kindly undertaken to convey it to its destination.

Sir Roderick Murchison replied:—

"As a sincere admirer of the achievements of Admiral Smyth, including his successful efforts to advance the best interests of this Society, I am, indeed, proud to have been the individual who, in the terms which have been enunciated, recommended your Lordship and our Council to confer on so eminent a geographer the medal of our Royal founder.

"As this distinction has been awarded for researches of the highest order of merit, followed by results of vast utility to mankind, I feel assured that all true physical geographers, whether at home or abroad, will approve a decision which will also, I am certain, afford real gratification to the members of the Royal, Astronomical and Antiquarian Societies, in which our distinguished associate has so long played so conspicuous and honourable a part."

The award of the other, our Patrons' Medal, is one which, as I conceive, cannot but obtain here that unanimous concurrence it met with in our Council. It is true that science has long ceased to expect from the discovery of that Arctic communication between the Atlantic and the Pacific, commonly called the North-West passage, those advantages to commerce and navigation, the hope of which stimulated its first explorers. Still I can hardly think it necessary in this Society to defend that spirit of scientific curiosity which has led in our time to the endeavour to solve the great geographical problem of the North; nor can I think it any mean jealousy of other nations, which has made us desire that its solution should be reserved to British enterprise. The honour of its accomplishment has fallen on Captain Robert J. Le M. M'Clure; and it is my belief that no one since the time of Baffin and Barentz, has embarked in the pursuit more worthy to win and wear that honour. I have, indeed, in saying this, no personal acquaintance with that officer, but I know something of the estimation in which he is held by his comrades. This kind of evidence to character should, in my judgment, be accepted with discrimination. I have myself had opportunities of large acquaintance and intercourse with naval men, and I hold it wise and just to attach no weight whatever to anything which may pass current in conversation to the prejudice of any officer. Nothing short of legal evidence can justify unfavourable conclusions. I think it far otherwise when something like common consent, and what I may call

gun-room reputation, exists to the advantage of particular men, and with respect to particular qualities attributed to those men. I remember the moment when the account reached this country, of Captain M'Clure's parting with his companion vessel north of Behring Strait. The latest report described him as making straight for the ice, and I know the language which was held at that time in naval circles. It was to this effect:—"That man will not return by the way he is gone, unless at least he should meet with Franklin, or find reasons connected with his rescue for retracing his course; he will return eastward or return no more." Such was the verdict founded on professional knowledge of the man, and has it not been justified? I wish indeed I could use the word 'return' in its complete sense, and that it implied something more and better than the knowledge of his position and assurance of his safety to a certain date, with the reasonable anticipation that we may yet have occasion to give him our geographical welcome upon his personal reappearance among us in health and safety. That satisfaction is as yet denied us. I cannot place in his hands this tribute of our Society: I can but confide it to the care of one whose stern experience in Arctic regions by sea and land enables him peculiarly to appreciate those qualities of skill, courage, and endurance, essential to the achievement of the great exploit which will henceforth be associated with the name of M'Clure. Sir George Back has kindly accepted this office, and from no hands can Captain M'Clure be better pleased to receive this token of our applause and appreciation, than from those of his old commander.

Sir George Back replied:—

"My Lord,—It is with no ordinary satisfaction I receive this Medal, which the successful services of the gallant officer have obtained from the Royal Geographical Society: for Captain M'Clure began his Polar career under my orders in H.M.S. 'Terror,' where more than once, amid great dangers, he evinced by his steady conduct what might be expected of him on any future occasion.

"Among the many calls for decision in his late remarkable voyage, perhaps in no instance did Captain M'Clure show more judgment, than in taking immediate advantage of the information, accidentally gleaned, of there being a navigable passage through the Aleutian or Fox Islands.

"To effect so important an object, every sail was crowded on the 'Investigator;' and having passed safely through the group, he was enabled to arrive near Cape Barrow at one of those fortunate moments in the Polar Sea, when a '*lead*' through the ice opened out to him the first cheering prospect of advancing along the American coast.

"He did not hesitate; and thus encouraged, battled with the frozen element, beset with shoals and treacherous rocks, until he nobly achieved the object of his ambition—the discovery of the North-West Passage.

"My Lord, it shall be my care to treasure this proof of the Society's admiration for my gallant friend Captain M'Clure, nor will I fail to inform him of the courteous manner in which your Lordship presented it."

ADDRESS

TO THE

ROYAL GEOGRAPHICAL SOCIETY OF LONDON;

Delivered at the Anniversary Meeting on the 22nd May, 1854,

BY THE RIGHT HON. THE EARL OF ELLESMERE,
K.G., D.C.L., &c.,

PRESIDENT.

OBITUARY.

IT has been, as I find, the custom of my predecessors in the chair to preface their annual address by some notice of the losses which our Society has suffered by decease within the year. I am painfully reminded of this duty by the two first names which appear upon the official list before me—the names of two brothers, who, the one in the naval, the other in the military service, attained the highest honours and rewards of their professions, and were in their public and private character an honour to Scotland, which gave them birth—Admiral Sir Charles and General Sir Frederick Adam. "*Fortes creantur fortibus et bonis.*" I knew them well, and have seen them both in the prime of life, ornaments of that paternal mansion, Blair Adam, where their distinguished father, the Lord Chief Commissioner Adam, used to collect so much of the intellect and worth of Scotland.* Sir C. Adam served as a midshipman in Lord Howe's action, and subsequently in independent command distinguished himself by the capture of an enemy's frigate in the East Indies. In the Mediterranean his fine frigate, the 'Resistance,' and the active part she took in all the operations on the coasts of Italy and Sicily in the years 1809–10, will never be forgotten by his contemporaries by sea or land. He died in the enjoyment of the Governorship of Greenwich Hospital, a retirement coveted by the brave,

* See Lockhart's Memoirs of Sir Walter Scott.

and which none but officers of long and distinguished service obtain. General Sir Frederick Adam rose rapidly by service and merit to the higher ranks of his profession, and after long service in Holland, Sicily, the Bay of Naples, and the Peninsula, in command of a brigade of the Light Division, took a conspicuous share in the famous closing struggle of Waterloo. I remember that when the father of one of our Associates now present, Lord Colchester, as Speaker, conveyed the thanks of the House of Commons to that army and its chief, he wound up an eloquent passage of his address by an allusion to the brave brigades of Byng, Maitland, and Adam. Sir Frederick Adam was subsequently employed for several years in the office of Lord High Commissioner of the Ionian Islands. Of these two brothers I may say, "they were lovely in their lives, and in their deaths they were not divided." The shock produced by the sudden decease of the younger, Sir Frederick, was, I believe, mainly the cause of the illness which carried his brother to the grave.

The late Captain Francis Price Blackwood, R.N., entered Her Majesty's Navy in 1821, from which date we trace him actively employed till the year 1838, when the Admiralty rewarded him with his Post-rank. In 1841, Her Majesty's Government having determined to assign the true positions and exact limits of the Great Barrier Reef, which stretches along the North-Eastern shores of Australia, and to mark the most eligible openings through which vessels might pass in comparative safety on their homeward voyages, he was selected to carry out this arduous duty; and for this purpose, therefore, in November of that year, he was appointed to the command of Her Majesty's ships Fly and Bramble.

The results of this expedition, however briefly sketched, show a highly important and valuable addition to hydrography, and sufficiently prove the zeal and talent with which that great work was so successfully carried out, enabling us to connect the mass of detached work previously done by Cook, Flinders, Bligh, King, Stokes, and other navigators.

In the four years he was thus employed, more than 1000 miles of sea in length, and 170 in breadth, were surveyed and charted—from Sandy Cape, on the Eastern coast of Australia, as far as lat. 21°, including the Capricorn Group of Islands, the widely-spread mass of Swain Reefs, and the broad passages between them, a tract of 200 miles in length and 100 in breadth; the survey of the coast of the mainland and the adjacent sea, from West Hill to the northern part of Whitsunday Passage, a distance of 100 miles; the outer line of the Great Barrier Reef, from lat. 16° 40′ to its Northern limits in lat. 9° 20′, a distance of nearly 500 miles; the survey of Endeavour Strait and of

all the Eastern portion of Torres Strait, from Cape York to the Coast of New Guinea, with more than 140 miles of the latter coast, together with the numerous off-lying dangers and wide-spread banks of shoal soundings, and the mouths of the numerous rivers and freshwater channels which intersect those shores in every direction.

To carry out the chief object of the expedition, however, was to determine the most advantageous channel for vessels to pass through the Barrier Chain; and I may well close this outline of his services in Australia by pointing to the tower he raised on Raine's barren Islet for this purpose.

With only the additional assistance of 20 artificers and a small cutter under the command of Lieut. Ince—with no anchorage or shelter near, and surrounded by dangerous reefs—no other materials than the coral rock of the island for the tower—the shells gathered from the reefs at low water for lime, the beams of wood required for the building from a neighbouring wreck—he raised a tower beacon, 70 feet in height, 30 feet in diameter, with stone walls of 5 feet in thickness.

This beacon there remains, and is a faithful witness to the skill and perseverance of the architect who raised it, and whose untimely end this Society deplores.

But besides the ardour with which in all cases he performed his professional duties, he lost no opportunity of pursuing his taste for science, and even constructed a small observatory in order to study with more effect every branch of practical astronomy, which it might be possible to enlist in aid of navigation and geography. Guided by the same activity of mind and body, in 1851 he obtained a few weeks' leave of absence, and proceeded to Helsingborg, in Sweden, to observe the approaching eclipse of the sun, which, from the singular appearances that had taken place at a former total eclipse, had aroused the attention of the philosophic world. Helsingborg was on the outer limit of the space where the moon would wholly obscure the sun: the weather was satisfactory, his instruments had been well chosen, and he succeeded in observing the extraordinary projections of flame from the limb of the sun, which had so much excited the curiosity of astronomers; and his modest but accurate account of that phenomenon was found worthy of being published in the Memoirs of the Astronomical Society.

Had it pleased Providence to prolong his life, he would doubtless have rendered eminent services to his country; and sorrow for his private worth is heightened by regret that his early loss has removed an ornament from the profession, in which he had already justified an hereditary title to distinction.

By the Honourable Robert Clive's decease, the House of Commons and the county which he represented, have lost one of the most efficient and trustworthy conductors of the private business of the country. It was, as I am informed, under his devotion to this useful department of an English gentleman's industry, that his health finally gave way. His loss has been equally felt in the higher ranks of society by a large circle of private friends, to whom his highly-cultivated mind and gentle manners had endeared him.

Colonel James Nisbet Colquhoun, of the Royal Artillery, was one whose career, both in the service of the Crown and in other spheres of action, had been one of unceasing exertion, much adventure, and great distinction. After service as an artillery officer in the old wars of the Peninsula and Belgium, finding the regular path of that branch of the service in time of peace deficient in interest, he became for awhile the companion of Scoresby in the Spitzbergen region of the Arctic seas. When British speculation was subsequently directed to the mining-fields of South America, he became the acting engineer of a mining company, in whose service he distinguished himself by extraordinary fertility of resource in conveying to the scene of operation, over a most difficult country, the heavy machinery sent out from England. He later attached himself to the Anglo-Spanish expedition of General Sir De Lacy Evans, in command of its artillery, and superintended all the operations of that arm, and was associated with General Espartero in various actions of that war. He afterwards obtained employment in his own profession at Woolwich, where his appointment as superintendent of the carriage department brought out in strong relief his great mechanical capacity and acquirement, and his unbounded energy in rendering his views effective. There are many reasons and many excuses why public Government establishments are slower than private, in adopting the last improvements for economizing manual labour. I mention it not as a reproach, but as a fact. I live much in a part of the country where the hand of man, an admirably constructed machine in itself, is reduced or nearly so to its proper office of directing rather than exerting power. I have more than once witnessed in Government establishments, processes still carried on either by human labour or by machinery cumbrous and obsolete, to which far more complete and efficient mechanical agencies had long been applied in Lancashire. What such establishments as Woolwich and Portsmouth require, is men who can look about them and quit these old routine paths, without straying into experimental extravagance. Such a man was Colonel Colquhoun; and I am told by his associates that but for many mechanical improvements intro-

duced under his direction, present circumstances might have found us most inadequately prepared for fitting out our recent expeditions of succour to our allies. Colonel Colquhoun's active mind was applied to many other scientific subjects than those to which I have alluded in this brief notice; and as he also took a warm interest in the proceedings of this Society, his memory is justly entitled to this tribute.

Another deceased associate, Mr. Thomas G. Bucknall Estcourt, was also an ornament to the House of Commons, in which he sat for some years in the high position of one of the Members for Oxford University. I can speak from personal recollection to the respect in which he was held by men of all parties.

Prince Emmanuel Galitzin was one of the corresponding members of our Society. His character as a subject by birth and allegiance of a sovereign, with whom we are now unhappily at war, cannot diminish our respect for his memory. Out of this room we are politicians, soldiers, statesmen, as the case may be—above all, Englishmen; within it we are geographers, and as such can have no feelings but those of good will to a country which has freely contributed to our special stores of information such additions as, for instance, the memoir furnished to our last year's Journal, of the survey of the Sea of Aral, with those untrodden islands in which the deer had no traditionary fear of man, by Commander Butakoff. Prince Galitzin was one of those who adorn high rank and worldly position by literary and scientific accomplishment. His principal contribution to our department of research was a published narrative of a journey in Finland. He had also contributed a paper on the manners and customs of the Jacutes, which has been translated by our Secretary, Dr. Shaw, and will be shortly published in the Transactions of the British Association. He may be considered, in the accident of his death, to have been one of the martyrs to science; for like our Scottish poet Leyden, he contracted in an ill-aired public library at Paris, the malady which carried him off at the age of fifty-four.

The decease of Mr. John Holmes, Deputy Keeper of the MSS. in the British Museum, has deprived that establishment of one of its ablest servants. Sir Roderick Murchison, who acted with myself on a commission of inquiry into the Museum, and is now one of its trustees, will bear me out in saying that Mr Holmes came in for his full share of that testimony, which our researches made us happy to bear to the high qualities of the officers of the Museum. I can also bear personal witness to the amiable alacrity with which Mr. Holmes placed his vast information at the disposal of those who applied to him in any matter of antiquarian research.

The naval service has lost a valuable officer in one of our members, Captain Sir J. Everard Home. He died at Sydney, and left behind him in that distant dependency of our empire, a grateful recollection of the services he had rendered to the colony while stationed in its waters. He had conveyed to it, at his own expense, a fine herd of deer from this country; and his last act was to bequeath to the capital the books in his possession as a nucleus for a public library.

Since this Address was delivered, intelligence has reached me of another decease, that of Lieut. W. H. Hooper, R.N. He is to be numbered among the victims, hitherto singularly few, of the search for Franklin. He commanded the second cutter in the voyage of the 'Plover's' boats from Icy Cape to the Mackenzie and to Cape Bathurst, and published an interesting volume under the title of 'Tents of the Tuski;' which, together with an account of that little known race, contained a narrative of his subsequent boat voyage, and of two winters' residence at Hudson's Bay Company stations on the main land: which latter portion will make it easy to understand that he laid there the seeds of the disease under which his constitution finally sunk at the age of 27. He was an enthusiast in the search for Franklin, diligent in the record of magnetic and other scientific observations, and was frequently mentioned with distinction in the dispatches of his commanding officers, Captains Moore and Pullen.

By the death of Professor Robert Jameson of Edinburgh, Modern Natural History has lost one of its great fathers, and Physical Science one of its brightest ornaments.

Mr. George O'Gorman was a valuable member of our Council, long connected with Mexico and Central America.

In Mr. Charles Stokes science has lost one of its most enlightened promoters, there being few of its branches with which he was not well acquainted. Passing by his solid researches in geology, mineralogy, palæontology, and botany, and his warm encouragement of drawing, painting, and music, let me say that he was one of the earliest patrons of lithography in our country, and that he spared no expense to enable the first experimenters in that art to attain successful results. Again, he was the true friend of the explorers of distant lands or seas, numbers of whom can testify that his advice was of the highest value to them. Though scarcely a traveller beyond the British isles, he had mastered several languages; and being in constant correspondence with eminent foreigners, was held in high repute by them. If he published little, he has secured for his memory a lasting tribute from a distinguished younger contemporary, Professor Edward Forbes, who has declared that "he was one of the 'many' who owed much to the sound

sense and surprising knowledge of Mr. Charles Stokes, a man as careless of fame as he was brimful of benevolence." *

My predecessor in this chair, Sir Roderick Murchison, has specially requested me to include him among the "many" who have derived sound instruction from Mr. Stokes, and to say that he considers it to have been one of the great privileges of his life to have been the intimate associate of one who was the valued and bosom friend of a Wollaston and a Chantrey.

A scientific career of the highest promise has been cut short by the lamentable accident which lately deprived Mr. Hugh E. Strickland of life at an early age. In the University of Oxford, and in scientific circles, he had attained an early eminence as a geologist and natural historian. After an active attendance on the meeting of the British Association at Hull, he was engaged in the study of some geological phenomena on a neighbouring line of railroad, near the mouth of a tunnel, when, stepping aside to avoid one approaching train, he unfortunately encroached upon the line of another which was passing at the same unhappy moment.

The name of B. L. Vulliamy was one well known as connected with the highest eminence in his profession as an horologist.

In Professor George Wallin of Finland, this Society has to regret a most distinguished traveller, for whose able investigations in Arabia one of the Royal Awards was recently conferred by the Council. His native country, Finland, is one which comes little into contact with the other members of the European family; but such men as Wallin, and, I may add, Castren, who has lately fallen a victim to the labours and privations of Russo-Asiatic exploration, and who has left behind him a profound work on the mythology of his nation, can elevate any country above the rank of a mere appendage to an empire. Of Professor Wallin's accomplishments as an Eastern traveller, it is sufficient to say that he had acquired a mastery of the Arabic language, which, assisted by the effects of an Eastern sun, and familiarity with native habits, enabled this son of a northern race to pass everywhere for a Bedouin; and I believe that Colonel Rawlinson even, was one of those who were deceived as to his origin. Those who know anything of the preliminary difficulties of that language will appreciate such a triumph. I am not at present informed of the particulars of the decease of this distinguished man, concerning whom my predecessor spoke to you at

* *See* Anniversary Address of the President of the Geological Society of London; Quarterly Journal of the Geological Society, Feb. 17th, 1854.

some length with regard to a new exploration of Arabia, to effect which this Society had been in correspondence with the Imperial Geographical Society of St. Petersburg.

Our obituary further includes the names of Mr. William Blake, M.A.; Mr. J. F. Elphinston; Mr. James Gooden, F.S.A.; the Hon. Edward Herbert; Sir Richard Jenkins, G.C.B.; Mr. G. S. Nicholson; Mr. John Plowes; Rear-Admiral Charles Sotheby; Sir Edward Thornton; and Lieut.-Col. John N. Wells, R.E.

But before finally closing this sad list there is one name to which I feel myself at once unable to do justice, and discharged from the responsibility of the attempt. Something like justice has been rendered to it by others in this country. Statesmen, orators, and poets have vied with each other in doing honour to the name of Joseph René Bellot.

> "There have been tears and breaking hearts for him;
> And mine were nothing, had I such to give."

The tidings of his loss rung like a knell through England, and the narrative of that catastrophe will be studied so long as men shall seek in the annals of Christian heroism and self-devotion, of active but modest and unostentatious philanthropy, examples how to live and how to die.

The name of Bellot is a sad and fit introduction to the chapter of Arctic discovery, which formed the first item in my predecessor's Address of last year, and might naturally, however painful in many respects the interest of the subject, be the fit preliminary to mine. I must here however request your indulgence in advance for considerable deviation from the practice of my predecessors. It has been for several past anniversaries the practice to take this occasion for exhibiting a panoramic view of the condition of geographical science and discovery in a continuous progress over the surface of the globe. By none of my predecessors has this task been executed in a more complete and lucid manner, or more to the despair of his successors, than by him whom it is my misfortune, "haud passibus æquis," to follow. It is an admirable practice for those who are, like him, competent to carry it out. It has, however, pleased you, Gentlemen, rather in your indulgence than your wisdom, to observe in your election to the chair, the Shaksperian maxim of choosing the most desertless man to be constable, and you must take the consequences. I am neither a Humboldt nor a Murchison. If an active member of our Council, Sir Henry Holland, had not been called away from this meeting, he might have confirmed me in saying that an omnivorous appetite is not

always accompanied by corresponding powers of digestion and assimilation, and this applies quite as much to an appetite for literary as to one for sensual indulgence. It happens also that an unusual concurrence of private calls on my time has for some three weeks past attracted my attention to objects foreign to our discussions; and the utmost I can attempt or perform is to bring under your notice a few of the more salient points of geographical interest of the moment, and some crude results of desultory reading.

The leading features of the present condition of Arctic exploration are familiar to all who hear me. The veil is still unlifted which hangs over the sad mystery of the North. The reappearance of Captain M'Clure cannot remove uneasiness, but forbids us to despond for the safety of Captain Collinson.

For the safety of Sir Edward Belcher we have no other ground for disquiet, than such as must always exist for the fate and fortunes of those who have pushed forward beyond the reach of communication and the track of the whaler into the Polar Seas. If I express my conviction that Sir E. Belcher has at least advanced in the right direction for his main object, I say no more than I presumed, on less information than we now possess, to say in the way of conjecture some years since. In 1848, in the pages of a periodical, I ventured to express an opinion that Wellington Channel was high on the list of probable tracks for the discovery of Franklin's traces. Since that time the negative evidence afforded by so many and able searches to the westward, and the more positive evidence of the discoveries of Beechey Island, have so far fortified my conclusion. I am happy to think that the search for our missing countrymen again numbers among its noble devotees, a party from the United States. The wreath of such success as can yet be hoped for, the honour of the rescue of a single survivor, or, if Providence has otherwise decreed, that of removing uncertainty, could fall on no worthier head than that of Dr. Kane; and happy should I be, for one, if the name of my friend Mr. Grinnell could be still more conspicuously associated than it already is, with such noble exertions as he and his countrymen have already made in the cause of humanity. On the great and interesting question of the limit of such exertions, I should be reluctant to put forth opinions of my own. I am however aware that opinions are held on this subject by men whose authority cannot be without its weight on those who have to decide on this matter.

I am aware that persons of the highest authority in these matters are of opinion that no effort should still be spared to explore that

farthest land which was clearly descried to the north by Sir E. Belcher. There are many also who are convinced that the ships reported to have been seen on an iceberg in the Atlantic were the abandoned vessels of Franklin, and that the western shores of Baffin Bay and the coasts of Cockburn Land should be more fully explored for traces of their crews than has hitherto been done. I have every confidence that such opinions, held as they are in quarters on every ground entitled to respect, will have their due weight with Her Majesty's Government.

The written and published records of Arctic exploration have lately received a most interesting addition in the Journal of Lieut. Bellot. The literature of autobiography has been no less enriched by this publication, which contains not a page that does not do honour to the writer. My attention has been directed to a passage at page 335 of this volume, and to an annotation of its able editor, which I think merits observation. It relates to a supposed difference of opinion on a point of some geographical interest between the writer and Mr. Kennedy. I advert to it not for the purpose of geographical discussion or detail, but first, because it brings out in strong and creditable relief the delicate susceptibility of the writer. The very notion of a difference of opinion on a matter of fact with his friend seems to have weighed upon his mind; and he appears to have positively shrunk from the prospect of elevating his own credit for accuracy at the expense of Mr. Kennedy. My other reason for allusion to the passage is, that I believe the difference of opinion did not continue, and that Lieutenant Bellot, before his last expedition, had found reason to adopt the conclusions of his associate, a fact with which his editor was not acquainted. I cannot omit to observe that this Journal corroborates throughout an opinion expressed by a friend of Lieutenant Bellot, that his character presented a singular union of the better qualities of three great races, the French, the English, and the German; of the ardour and vivacity of the first, the practical spirit and simplicity of the second, and the meditative and reflecting propensity and power of the third. It may interest my hearers to know that the subscription (to which your Secretary has devoted much of his valuable time) set on foot in this country for some tribute to his memory has so far prospered, that the result will provide a fit and lasting memorial, and leave (as I am told by the chairman of the 'Bellot Testimonial Fund,' Sir R. Murchison) a margin of about 1500*l.* to be distributed among the five sisters of the deceased. Well may Englishmen rejoice in thus assisting a family which has reason to be proud that, with limited worldly means, it educated and sent forth such a labourer into the vineyard of humanity.

Our own Labours.

Although notices of these are distributed here and there through this Address, I must refer for greater detail to the Report of the Council and to the next volume of the Society's Journal, which, under the able editorship of our Secretary, may be expected not to fall short of its predecessors. Among the papers read before you since our last anniversary, I will only enumerate those on the Discovery of the North-West Passage, by Captain M'Clure; on the Passes of the Balkan, by General Jochmus; the Geographical Explorations in Africa, by Livingston, Anderson, Vogel, and Barth; the projected Expedition in Northern Australia; Colonel Lloyd's Explorations in Bolivia; the successful Navigation of the River Murray, in South-Eastern Australia; the Russian Caravan Trade with China; the Report on the failure of the Isthmus of Darien Expedition, by Captain Prevost; the Visit to Medina, by Lieutenant Burton; and that on the Physical Geography of the Red Sea by Dr. Buist, who has also favoured us with a view of a new instrument for measuring the velocity and ascertaining the direction of Sub-surface Currents.

Admiralty Surveys.

Under the able guidance of our veteran geographer, Admiral Beaufort, the labours of the Hydrographic Office have been—

England.—The survey of all the south coast is completed as far westward as the Bill of Portland, including the Goodwin Sands, and the whole of the intermediate harbours, with Spithead and the Needles Channel.

The interval between Portland and Start Points is satisfactorily advancing under Lieutenant Cox, who has succeeded in that district to the talented and experienced Captain W. L. Sheringham, F.R.G.S.

Commander Williams has finished, with his usual accuracy, the south-west angle of England, and is now rapidly working to the eastward along the coast of Cornwall.

Bristol Channel.—Lieutenant Alldridge, after carefully tracing the important changes which have been produced by currents, tides, and surf, upon the banks of the rivers Parrett and Bridgewater, and discovering many new shoals and rocks in the noble haven of Milford, is preparing to undertake the rivers Taw and Torridge.

Mr. E. K. Calver, Master R.N., well known to members of this Society by an admirable treatise 'On the Conservation and Improvement of Tidal Rivers,' has just completed elaborate surveys of the Humber and the Tees on the east coast of England. The former while

in progress was sent, by permission of the Admiralty, to the Geographical Section, at the last meeting of the British Association at Hull, and elicited much and well-deserved approbation.

North Sea.—Mr. Dillon, Master R.N., in H.M. cutter Gossamer, is now bringing to a close, a series of observations on the singular but important laws which appear to govern the tidal streams in the North Sea and English Channel, under the superintendence of our associate, Admiral Beechey, whose able discussions of the subject have already appeared in Part II. of the Philosophical Transactions for 1851.

Scotland.—Lieutenant Thomas has nearly completed an elaborate and much-wanted plan of the Firth of Forth, from Stirling to its entrance.

Commander Bedford is still indefatigably occupied in the deep inlets and among the innumerable rocks and islands of the coast of Argyleshire.

Commander Wood, having been appointed to the survey of the Minch, from which Commander Otter was transferred to the Baltic Fleet, as one of its eyes, is now engaged in the examination of Lochs Alsh, Dhui, and Long, and the adjacent shores of Ross-shire.

Ireland.—Commander Church is struggling manfully in the great estuary of Kenmare river against the rains and gales which render the south-west coast of Ireland such a very unsurveying region.

Captain Bedford and Commander Beechey are steadily and perseveringly carrying out the surveys of the coasts of Sligo and Donegal, which they had so successfully begun.

And though last, not least in merit of the Admiralty surveyors, Mr. R. Hoskyn, Master R.N., having minutely laid down Lough Foyle and the entrance of Londonderry river, is pushing along the north coast towards the Irish Channel.

Baltic and Black Sea.—Captains Sulivan and Otter in the former, and Captains Brock and Spratt in the latter, employed in pioneering the fleets under the orders of Admirals Napier and Dundas, have already furnished a mass of hydrographic information which will no doubt be diligently employed at the Admiralty in correcting many of the ports, channels, and anchorages which have been adopted from the Russian charts, and which, it is but fair to say, do great credit to the Russian surveyors.

China.—Commander Bate has just returned home in the Royalist, and brought with him a complete survey of the island of Palawan, with its numerous surrounding reefs and shoals; the object of the survey having been to facilitate the passage on either side of that great island to the China-going ships: and he is now, along with his two

assistants, sedulously employed in the Hydrographic Office in preparing the work for the engraver.

Mr. Richards, Master R.N., has arrived at Hong Kong, in the command of H.M.S. Saracen, and will soon contribute his share to our knowledge of the Eastern seas.

New Zealand.—Commander Byron Drury, in H.M.S. Pandora, though only a sailing vessel, has shown, by the quantity of excellent work that he has performed in that group of islands, how much may be achieved with inferior means when skill and will are equally combined.

Bay of Fundy.—Commander Shortland is still labouring in H.M. steam-vessel Columbia in the southern part of that huge gulf, where he has carefully followed out all the inlets of the deeply indented shore of Nova Scotia, and closely explored the proverbial dangers at its entrance. The present summer he has devoted to the group of Manan islands.

West Indies.—Mr. Parsons, Master R.N., in H.M.S. Scorpion, has resumed the survey of the British West India islands and the shores of the Gulf of Mexico, which had consecutively engrossed the best efforts of Captains R. Owen, Edward Barnett, and of Lieutenant Lawrance, whose useful labours were abruptly brought to a close by the fatal fever in January of last year at Santa Cruz.

Mr. Parsons' first undertaking has been the examination of Port Escoces in the Isthmus of Darien, which was at one time proposed for the eastern termination of the contemplated ship canal.

South Pacific.—Captain Denham in the Herald, and Lieutenant Chimmo in the Torch steam-tender, have broken ground in the neighbourhood of the Fiji and Friendly Islands. As yet they have been chiefly employed in clearing away many of the fabulous rocks supposed to endanger the path of vessels resorting to that archipelago from Australia and New Zealand, and it would be scarcely fair to anticipate the harvest of information that may be reaped during another year by those accomplished officers.

Cape of Good Hope.—Lieutenant Dayman, being only attached as a supernumerary to the flag-ship there, has only scanty means at his command, but he has already completed a careful survey of the coast from Cape Hanglip to Cape Agulhas, with a full description of the intermediate dangers; and in proportion as fresh powers are intrusted to that accomplished officer, so will his contributions to geography and navigation extend in interest and importance.

North America.—Captain Bayfield is now at work on the north-east coast of Nova Scotia, where the harbours were so loosely surveyed and

so faultily expressed, that many of our former charts could only be considered as snares instead of guides. The last of his many important labours that have reached home is an ample and accurate plan of Halifax Bay, where many disasters had occurred from the ignorance of the pilots of the number and position of many of its dangers.

To few men living is geographical progress more indebted than to this veteran and indefatigable officer, to whom we are indebted for the surveys of all the Canadian lakes, for those of the gulf and river of St. Lawrence, with its tributary streams and harbours and islands, for a masterly code of directions for the whole included navigation, and, lastly, for connecting the meridians of Quebec and Boston, with the assistance of Commander Shortland and of Mr. Bond, the distinguished astronomer of New Cambridge, U. S.

Ordnance Surveys.—Besides preparing for the publication of the principal triangulation, the Ordnance, I am informed, is about to publish a volume of Levels in Ireland, and another of the Meteorological Observations made at the Survey Office, near Dublin.

Mr. Arrowsmith has published a beautiful map of the southern portion of the Crimea, from surveys made by order of the Russian Government. A new and enlarged edition of the Physical Atlas, by our associate Mr. A. K. Johnston, is in course of publication, and will contain thirty-five maps, six being entirely new: the beautiful process of printing in colours has been very successfully applied in this edition. The second volume of the Imperial Gazetteer, by Dr. W. G. Blackie, one of our members, is nearly completed; and also similar works by Mr. Charles Knight and Messrs. Fullarton.

I have been gratified by learning from Dr. Jelf, the Principal of King's College, London, that the Council of that institution has established a Lectureship in Geography, and that the Rev. C. G. Nicolay, our Associate, has been appointed to this duty. The measure has immediate reference to the project of Government for the improvement of the Civil Service and to the benefit of military students. It is, however, founded on the claims of the science of Geography to more distinct cultivation than it has hitherto obtained in schools and colleges, and the lecture will be accessible to students of all departments as well as to occasional students.

France.—The Dépôt de la Guerre has completed the great Topographical Map of France; and we have to return our thanks for the valuable Charts presented to the library by the Dépôt de la Marine.

Holland and Belgium.—The works published by our associates the Chevalier J. Swartz of Amsterdam, and M. Van der Maelen of Brussels, have been kindly forwarded to our library.

Sardinia.—I have also to record the receipt of eighteen sheets of the Topographical Maps of Sardinia, presented by the Foreign Office of that kingdom, through our correspondent, Sig. Cristoforo Negri, of Turin.

Switzerland.—From Switzerland our excellent correspondent, Mr. Ziegler, has furnished a satisfactory report of the progress of the large map of that country now in process of publication. His report contains incidental allusion to several facts of scientific interest which came under the notice of the officers employed in this service under the direction of General Dufour, or of the engineers employed in surveying or executing the lines of railway now in progress. Among others I may mention the atmospheric and geological results of the destruction of forests, in the more rapid descent of the waters, and the more sudden and sensible accumulation of sedimentary deposits.

From our learned associate, Professor Paul Chaix, of Geneva, we have received his work entitled 'History of the Discovery and Conquest of South America;' a paper on the Statistics of Switzerland; and one on the *vexata quæstio* of the Passage of Hannibal; as well as a Sketch of the Valley of Beaufort.

Turkey.—Schropp of Berlin has lately published a map of European Turkey, in four sheets, by Professor Kiepert, with which the courtesy of its author has enriched our library. We have also received from the same source the map of Asia Minor, in six sheets, by Professor Kiepert, embodying with his own surveys those of Vincke, Fischer, Moltke, and some of our own countrymen. The memoir which accompanies it affords the most satisfactory evidence of the care which has been taken to render this work as accurate and full as possible. Professor Ritter has also contributed a map of the countries of the Euphrates and Tigris, in four sheets, together with the new volume 'Palestine,' of his great work on Asia.

An interest unhappily other than scientific at present attaches to the mountain barrier of European Turkey, the Balkan. Those who have attended our evening meetings will recognize the obligation we are under to General Jochmus for much elaborate information as to its passes, and the routes which in ancient and modern times have been adopted for its passage by invading armies.

We may hope that some advantages to science may accrue to balance the evils of the present contest. It may well happen, for instance, that

men of science may penetrate, as auxiliaries, those rugged recesses of Circassia, which have hitherto bid defiance to all hostile incursions. Recent accounts from the Black Sea inform us that British officers are already in friendly communication with the mountaineers of these hitherto inaccessible regions, and an enterprising Associate* of this Society has taken his departure for the Caucasus. Whatever the issue to our arms, our charts of the Black Sea cannot fail to receive much improvement, and our knowledge of its coasts and adjacent territories to be much extended. Science may sometimes condescend to the position of a camp-follower, and gather spoil from fields of battle with which she has no other concern than that of adding to her stores.

ASIA.

From our Indian Empire I should have little of recent interest to report, if I had not occasion to congratulate you on the appearance of Dr. Hooker's two volumes, principally but not exclusively relating to the little known mountain tract of Sikkim, which lies to the eastward of Nepal. I may briefly say of these volumes that they contain no page which does not bear testimony to the various accomplishments of the author for his task as a scientific traveller. There is scarcely a department of physical science which has not been enriched by his able observation and faithful report. Botany, as might be expected from his name, is conspicuous in the list; but Ethnology, Geology, and Meteorology have equally found their place in its pages. With respect to Geology, it strikes me that it contains some salutary warnings against hasty generalizations from organic fossil phenomena of a limited albeit extensive area. For geographers specially, it contains some interesting indications as to the true course of that great river, the Brahmaputra, much of which has hitherto, I believe, been little ascertained. Geographers and geologists will alike rejoice in the information afforded as to the lofty mountain ranges which have been explored by Dr. Hooker and by our associate Dr. Thompson, and those passes, some 18,000 feet in height, over which the yak and the sheep convey the merchandise of the trader.

A report has been received of a very interesting journey performed by Lieut. Richard F. Burton, of the Bombay Army, from Yambu, on the Red Sea, to Medina and Mecca. The details of the first portion of this exploit, the voyage from Suez and land journey of 164 miles to Medina, have been laid before our Society at its last evening meeting for the Session. They prove that the confidence of our Society has not

* J. A. Lloyd, Esq., since fallen a victim to Cholera.

been thrown away. Lieut. Burton travelled in the disguise of an Afghan pilgrim. His knowledge of the language and habits of his desert companions, and his boldness and sagacity, enabled him to maintain this disguise, the detection of which might have been dangerous, with complete success. A skirmish with Bedouin Arabs was fatal to 12 of the party, and no one, not inured to climate and observant of precautions, could have easily surmounted the difficulties of such a journey. We have to expect the further particulars of these travels, including the visit to Mecca.

Africa.

There is no part of the world in which more important additions to geographical knowledge are at present in progress than Africa. For any complete and published results of recent African travel, however, I can at present do little more than refer to the two excellent volumes of Mr. Mansfield Parkyns. Several years out of a much longer period of absence from England, were devoted by this most enterprising traveller to Abyssinia. His work must be read in order to arrive at a conception of the fatigues and hardships through which a love of science, sport, and adventure can carry an English gentleman, born and bred to the command at home of all the luxuries and comforts of English affluence. Landing at Massuá, he finally emerged in safety at Khartum, and brought away a journal rich in observation on all subjects. The name of Parkyns will henceforth be honourably associated with that of Galton, a traveller of the same class, and our medallist of last year, in the annals of African exploration.

In Central Africa much more has been performed than I am yet enabled to state with accuracy and detail. We are informed, however, by our as yet imperfect accounts, that Dr. Barth has reached Timbuctu, and that Mr. Vogel and his companions of the English corps of Sappers have reached Lake Chád. It is impossible to speak too highly of such achievements as these; but until the original observations, which we are informed have been made, appear, little can be said as to the deductions.

Chadda Expedition.—Whether any communication may be effected with either of the parties above mentioned, by the steam expedition which has just started for the mouth of the Niger, and which is to ascend the Chadda as far as possible in the present summer, is more than doubtful, seeing that since his journey southward and his crossing the Benué (supposed to be the continuation of the Chadda), Dr. Barth has retraversed to more northern latitudes, and, if the original project be

adhered to, will penetrate eastwards from Lake Chád to Mombas.* Quite independently, however, of such efforts, the Chadda expedition has been so well organized for the attainment of its peculiar and limited objects, that it can scarcely fail to produce good results, and even within a very short period. Anxious to avoid the loss of life and failure which a hasty and ill-prepared expedition would, in all probability, have entailed on the country, the Earl of Clarendon, Her Majesty's Secretary for Foreign Affairs, in conjunction with the Board of Admiralty, adopted the project for the ascent of the Chadda, which, after consultation with that sagacious African explorer, Mr. Macgregor Laird, was prepared by Rear-Admiral Sir F. Beaufort and my predecessor in this Chair. One of the chief features in this scheme was the construction, by Mr. Laird, of a peculiar flat-bottomed steamer (since called the 'Pleiad'), it having been found necessary to increase the power of this vessel when under construction, to enable her to ascend against a powerful current. In the first instance Lieut. Lyons Macleod (as announced in our former Address) was to have had the command, his first project of exploring between the Niger and the Gambia having been abandoned. Eventually that veteran African explorer, Mr. Consul Becroft, already well acquainted with the Niger and Chadda, was appointed the chief; and Mr. Laird having secured the services of an efficient native crew, the representative of this Society, Sir R. Murchison, recommended the employment of two well-qualified men of science, both naval surgeons, Drs. Baikie and Brown, who had volunteered for this arduous enterprise. The first of these, an accomplished naturalist, after being provided with necessary instructions by my predecessor and Colonel Sabine, has sailed on his mission; the other, it is worthy of notice, was only taken from this object of his zeal by being ordered to join the Baltic fleet. This vacancy has been, however, filled by a zealous young Prussian ethnologist, Dr. Phil. Bleek, of Bonn, who, already versed in several dialects of Africa and recommended by the Chevalier Bunsen, has had the advantage of the instructions of our eminent philologer, Dr. R. G. Latham.†

As this expedition is not sent out for the purposes of settlement, or of any protracted penetration into the interior, but is simply of an experimental character, it is hoped that in the early part of next year our well-qualified friends may once more be among us, with graphic sketches of the regions watered by this great stream, which we are assured, beforehand, will be unreservedly communicated to our Society

* *See* Journal of the Royal Geogr. Society, vol. xxi. p. 131.

† The news has just arrived of the death of Mr. Becroft; and Dr. Bleek has been invalided home.

by the Government. This voyage will determine whether an advantageous commercial intercourse can be opened out with the natives of the rich and densely peopled countries of Central Africa, and may thus lead to a legitimate traffic, which will offer an effectual check to the slave trade. Independently, however, of commercial advantages, we may justly offer our best thanks to Her Majesty's Government for thus aiding the cause of humanity and knowledge, and for having adopted such good measures to carry out a project in which this Society has so long taken a lively interest.

South of the Equator the report of progress is no less encouraging. Dr. Livingston has pushed onwards to the 14th degree of latitude—some 250 miles northward of his former and I need scarcely add other previous explorations—and will probably thence make for the coast to the westward. The accounts which have lately reached us from this gentleman are in the highest degree satisfactory. From what he writes of the treatment he has experienced from those with whom he has come into contact, natives and Portuguese, the latter slave-dealers I am sorry to say, the prospect for the future is encouraging. I should almost say that the main difficulty to an explorer, competently inured and qualified, was the prevalence of that curious pest, the '*tsetse*,' or poisonous fly, which compels the traveller to give it a wide berth, for the sake of the cattle on which he must rely for the means of progress. I must add that notes which have reached England of Dr. Livingston's observations for the establishment of positions have obtained the highest sanction from competent mathematical authorities here; Dr. L. having stated in much detail the processes he has followed and the precautions he has adopted against error. His figures, having been submitted to Mr. Maclear, of the Cape Observatory, and through him to Sir J. Herschel in England, have stood that test; and I believe I may say that there is more sound geography in the sheet of foolscap which contains them, than in many volumes of much more pretension.*

The enterprising young Swede, Mr. Anderson, who accompanied Mr. Galton in his explorations of South Africa, has at length succeeded in reaching Lake Ngami from Valfish Bay. The lake he places, by dead reckoning from Tounobis, in long. 23°. From the Lake Mr. Anderson ascended the Teoge, a distance of 150 miles in 13 days, but, owing to the serpentine nature of the river, made actually only 60 miles' northing. According to information collected by Mr. Anderson, a large stream, which he believes to be the Biribi mentioned by Mr. Galton,

* Accounts have since arrived that Dr. Livingston has successfully reached the coast, through Casange.

rises a short distance to the W. of the lake, and flowing N.W. joins the great river which, bounding the Ovampo-land on the N., empties its waters into the Atlantic. We are thus led to believe, from Dr. Livingston's and Mr. Anderson's late explorations, that there is, excepting a comparatively short break, a water communication *across Africa*, near the 17th parallel of S. latitude.

Mr. Anderson describes the country as perfectly healthy, and free from the tsetse-fly. The Damara and Namaqua land abounds with copper, as already pointed out by our own traveller, Sir James Alexander, who informs Dr. Shaw that gold also has since been found on the Orange River.

By the direction of the Council your Secretary has, during the past session, furnished instruments for observation to Dr. Sutherland* on his departure for Natal, and to Dr. Irving, proceeding to Abeokuta, viâ Badagry, on the West Coast.

The exploration of the Eastern horn of Africa and the Somali coast, so long advocated by this Society, appears likely to be undertaken; and it is with pleasure I hear that an application to the Court of Directors has been sent in from Lord Elphinstone, the enlightened Governor of Bombay, to encourage the outfit of an expedition under Lieut. Burton, whose late visit to Mecca and Medina has been already mentioned. Mr. Burton has asked permission to proceed from Bombay to Aden before the setting in of the rains, so as to be prepared to start at once after the monsoon.

AMERICA.

The two great continents of America are as fertile in materials for this Address as might be expected from the characteristic aptitude of the inhabitants of their great northern republic for the task assigned to them by Providence of discovery and occupation. One who in knowledge of all that concerns that republic is scarcely exceeded by the most enlightened of its citizens, Sir C. Lyell, has furnished me with a brief but pregnant summary of geographical proceedings in that quarter. "Never before," he writes, "did they, or any other government, set in motion so many exploring expeditions at once. Besides that of the Amazon just finished, and of which I lately received a report, there is now a survey going on of the Madera, a tributary of the Amazon, as long, I believe, as the Danube. Then there are two exploring vessels, with a good scientific outfit, gone to Behring Strait. No less than four or five large parties, each with engineers and as

* Dr. Sutherland had previously volunteered to join the Central Africa Mission.—ED.

many scientific men as they could engage, have gone to survey different routes for the Pacific Railway, 2000 miles long, from the Mississippi valley to the Rocky Mountains and Pacific."

This summary of my distinguished correspondent is well calculated to convey some notion of American capacity for going a-head. When we consider with what practical rapidity in North America the railroad follows on the track of the surveying engineer, and how soon the iron bar becomes associated with the electric wire, we may form some idea of the progress of civilization in that country. One word, in passing, on the electric wire. I was much struck in the United States by the apparently rough and certainly unexpensive manner in which that mode of communication is effected. Returning to England, I saw along our great lines of railroad, numerous wires suspended on posts of neat construction, and with elaborate appliances for isolation. I cannot presume in my ignorance to question the advantage of such solid and complicated arrangements where companies can afford them, but I could not avoid being struck with the comparative simplicity of the single American wire, with its rough support cut from the neighbouring forest. That it works well, I know by my own experience; but I may also mention that shortly after I left Niagara, an unfortunate man happened to be caught in the rapids above the American fall. He had gained a rock, where he lingered for some 24 hours or more. During this agony his condition was punctually reported, I believe, every ten minutes to New Orleans, and the hopes and fears, and the shock of the final catastrophe, vibrated through the Union. What the iron road is rapidly effecting for North America, steam navigation, we may safely conclude, will shortly effect in great measure for the vast tropical level of the Amazon and its tributaries. Lieutenant Herndon's journal of his descent of that river is probably in the hands of most of my audience. It is a work which leaves on perusal a most favourable impression of the author. He appears to possess every qualification of a traveller—gallantry, cheerful endurance, and a foundation of scientific knowledge laid deep and strong by the admirable education of West Point, which I believe to be about the best national seminary in the world. With these endowments Lieut. Herndon crossed the Cordillera from Lima, at an elevation of 16,000 feet, embarked in a 'dug out' on the Huallaga tributary of the Amazon, and after separating from his companion, Lieut. Gibbon, despatched by him on other similar service, pursued his solitary way to Pará, on the Atlantic, with a temper unruffled by mosquitos, and a constitution, I hope, unimpaired by the fatigues and privations of

such a voyage, and by a diet on monkeys and such other precarious supplies as he could procure.

While such an exploration was in progress from the sources of the great stream, another traveller of similar attainments and endurance, our associate, Mr. Wallace, was prosecuting researches from its mouth. We have to regret that his collections of natural history accumulated during three years of diligent labour perished by fire on the passage home. The traveller, however, and his journal, were fortunately preserved; and the latter leaves little to desire as a description of the main river and its principal tributary, the Rio Negro. "To-morrow to fresh fields and pastures new." By the time we have digested Mr. Wallace's present volume we may hope for the literary results of an expedition on which this gifted naturalist has started to the Philippine isles and the Malay Archipelago at his own expense, his passage being, however, paid by our Government, and the sanction of the Spanish and Dutch Governments having been obtained for him through the application of this Society.

This short summary does not allude to the interesting efforts which have lately been made conjointly by officers and men of the English, French, and United States navies to ascertain the character of the narrow strip of country which, at the Isthmus of Darien, separates the two oceans. Much gallantry and some sacrifice of life appear to have led to results unpropitious to the scheme of a ship or other canal in this quarter, the summit level appearing to be considerably higher than had been assumed from less perfect exploration. It is a satisfaction to know that an English party from H.M.S. 'Virago' had the good fortune to rescue Lieut. Strain of the U.S. navy, and others of his party, from a position of great danger, and which had already cost the lives of several brave men. I rejoice to be able to mention this instance of friendly co-operation between the two services, and Lieut. Herndon's volume will be found to contain several instances of the goodwill generated by casual intercourse between the author and our countrymen.

The United States Surveys, under the indefatigable Professor Bache and his able assistants, continue in their useful progress, and to be freely distributed by order of Congress to all educational institutions.

Among the most valuable contributions to science, and especially to the science of navigation, of any time, I cannot omit to mention the volume lately published by Lieut. Maury of the United States, being the sixth edition of his Sailing Directions, a title which conveys little conception of the masterly review which the work contains of oceanic

science. It is a worthy companion to those extraordinary works of art and science, his charts. Americans are not slow to reap the practical advantage of such researches and such generalizations as his. Lieut. Maury's instructions have already succeeded in reducing the duration of a voyage to California to one-half of the former average. The book is one which will make Lieut. Maury's friend, the veteran Humboldt, rejoice that he has lived to see it published.

I cannot doubt that Commodore Perry's successful, and, as appears, ably-conducted expedition to Japan, will prove rich in interest to geographers. The only report which has reached me of an official character connected with this important expedition is one relating to a visit to the Bonin islands.

I observe that Chilian newspapers begin to discuss a project for the invasion of Araucania. An advance in that direction would open up a country which, since the time of the disaster immortalized in the Spanish epic, has been sealed against civilized man.

Lieut. Page, of the U.S. navy, is at present employed in making surveys of the river La Plata. He has ascended the Paraguay with his vessel 600 miles above Assumption; thus considerably adding to the knowledge of this river already presented to us through the elaborate surveys executed by Captain Sulivan of H. M. steamer Alecto in 1846.

With respect to the various expeditions for survey of tracks for railroad or other communication between the eastern provinces of the United States and the Pacific, mentioned in Sir C. Lyell's summary, I extract the following particulars from an able and interesting report forwarded to our Secretary by our American associate, Mr. H. R. Schoolcraft:—

"The project of a railroad from the valley of the Mississippi to the Pacific is one which is attracting much of the energy of the United States. Several parties are now engaged in the experimental survey of different lines. The most northward of these lines of exploration has been conducted by Mr. Stevens, recently appointed Governor of Washington Territory on the Pacific. He left the Mississippi early in 1853, at St. Antony Falls, in 44° 58′ of N. lat., proceeding west up the Osakis River, across the prairie for 700 miles, measured by the odometer, till he reached and crossed the Missouri at Fort Union, at the mouth of the Yellow Stone River. Thence he proceeded northwards and westwards through the territories of the Upsaroka and Black-feet Indians by the White Earth or Milk River, and crossing the Lewis and Clarke pass of the Rocky Mountains, reached Clarke

River in the Colombia valley. In this transit the mountains were overcome at an elevation considered by the party as practicable for locomotives, being far less than that crossed by Frémont in 1843 and 1844. From this point the valleys were kept through Oregon to Astoria, and also over moderately elevated plains to Olympia, the newly-founded capital of Washington Territory on Puget Sound. An astronomer, topographer, botanist, geologist, and a staff of qualified observers accompanied Mr. Stevens, and the most accurate maps may be expected to result from this expedition.

"A southern line for a passage of the Rocky Mountains has been surveyed by a party conducted by Messrs. B. F. Beale and G. H. Heap. This party started from St. Louis, on the Mississippi, in lat. 38° 37′. They traversed in a southern direction the naked plains which intervene between this point and the base of the Rocky Mountains. They passed the Kansas, Arkansas, and Red Rivers, pursuing the latter into and over the gorges of the mountains into the valley of the Rio Grande del Norte, which they reached at Albuquerque, in New Mexico, 10 miles above Santa Fé, which is in lat. 35° 41′. Thence they proceeded W., through a country infested by fierce tribes of Indians, the Utah and Apache, to the Rio Colorado of the West. The peculiarities of this region, its wide tracts of barrens, its immense cañons of volcanic rocks, and general destitution of resources, offered trying obstacles. The Rio Colorado was crossed and followed down to the Tejar Pass, and by the Tulare lakes, into the valley of the Joacquin river of California, and thence to its capital, San Francisco. The journal of these gentlemen has been published.

"The central party of exploration was commanded by Captain J. W. Gunnison, U.S.A., aided by Mr. R. A. Kerns. They entered the passes of the Rocky Mountains at about the 43rd degree of north latitude, and had proceeded in the exploration of the mountain territory of Utah with satisfactory results, till reaching the vicinity of the Mormon settlements of the Great Salt Lake Valley, when they were set upon by a body of hostile Utah Indians and ruthlessly murdered. Their notes and papers have been recovered, and will, it is expected, in due time, be published, together with, or separately from, a large amount of information respecting this primal American chain of mountains.

"Early in the winter of 1853 Colonel J. Frémont set out with a competent party to explore a central pass, his object being to demonstrate the practicability of travelling that route in the winter. He took with him about twenty men, but not a large stock of provisions, expecting to kill sufficient game for the subsistence of his party.

Accounts have been received which show that this resource has unhappily been found insufficient, and that great suffering has been endured by the party from failure of food. He had reached the Rocky Mountains with little difficulty, but, after crossing the Middle Pass, was beset by great obstacles. He was met on the 4th of February, above Vegas, on the river Santa Clara, near the line of New Mexico, and about 400 miles directly east of San Francisco, having with him but fourteen men, the rest having perished in the mountains. It was deemed impracticable for him to continue his route due west over the Sierra Nevada, and he intended to pass down the Colorado and enter California through Walker or the Tejar Pass.

"Recent explorations by Mr. W. H. Nollis, made however without instruments, denote a practicable route for a railroad from the valley of the Sacramento by the south pass in latitude 42°, to Fort Laramie, on the Nebraska river. The facts require maturer surveys. The elevations to be overcome, and the extent of the barrens to be traversed, are believed to be adverse to this line."

In noticing the energetic efforts of the United States to open up a direct communication between its Atlantic and Pacific coasts, the natural advantages for interoceanic transit existing within the British territories in North America, which have been so fully discussed by this Society, must not be forgotten. Our Canadian fellow-subjects are rapidly extending railway communication from the Atlantic westward, and the advantages of direct intercourse with the Pacific will not be overlooked by them. A useful topographical work, by W. H. Smith, on Canada West, and the Canadian Journal, containing the Proceedings of the Canadian Institute at Toronto, have been sent to the Society, and furnish interesting proofs of progress in the British American provinces.

During the last summer the upper portion and sources of the Red River of Louisiana have been explored by Captain R. B. Marcy, U.S.A. This district, hitherto unknown, has been penetrated not without great perils from the Indians, and from want of supplies; and perfect delineations and maps have been made, which Congress has lately ordered to be printed.

A volume by Dr. E. K. Kane has lately appeared from the American press, containing the details of the Arctic Expedition, commanded by Captain de Haven, in search of Sir J. Franklin. It is illustrated with very beautiful engravings. With the renewed liberality of Mr. Grinnell and Mr. Peabody another expedition, under the command of that intrepid officer Dr. Kane, sailed from New York on May 31, 1853. No advices have reached the United States since his entry into

the depths of the Arctic Seas, and the profoundest interest is taken in the objects and success of this second American Arctic voyage of humanity and discovery.

Our library has also just been enriched by the beautiful volumes containing the Personal Narrative of the Explorations in Texas, New Mexico, California, Sonora, and Chihuahua, by J. Russell Bartlett, the United States Commissioner.

The well-known German traveller, Mr. Kohl, has lately brought with him to this country a collection of MS. maps and annotations of importance with regard to the history of discovery in America. This collection includes copies of some 750 maps taken from many old books and collections in Germany, France, and England, arranged in chronological order in 26 portfolios. He has also contrived to trace and distinguish on a single sheet the progress of American discovery as achieved by conquerors, traders, and other explorers from the earliest times to the latest, extracted from the records of upwards of 700 travellers. It may be expected that Mr. Kohl's visit to this country and present researches in the British Museum and other repertories will produce useful accessions to this great collection.

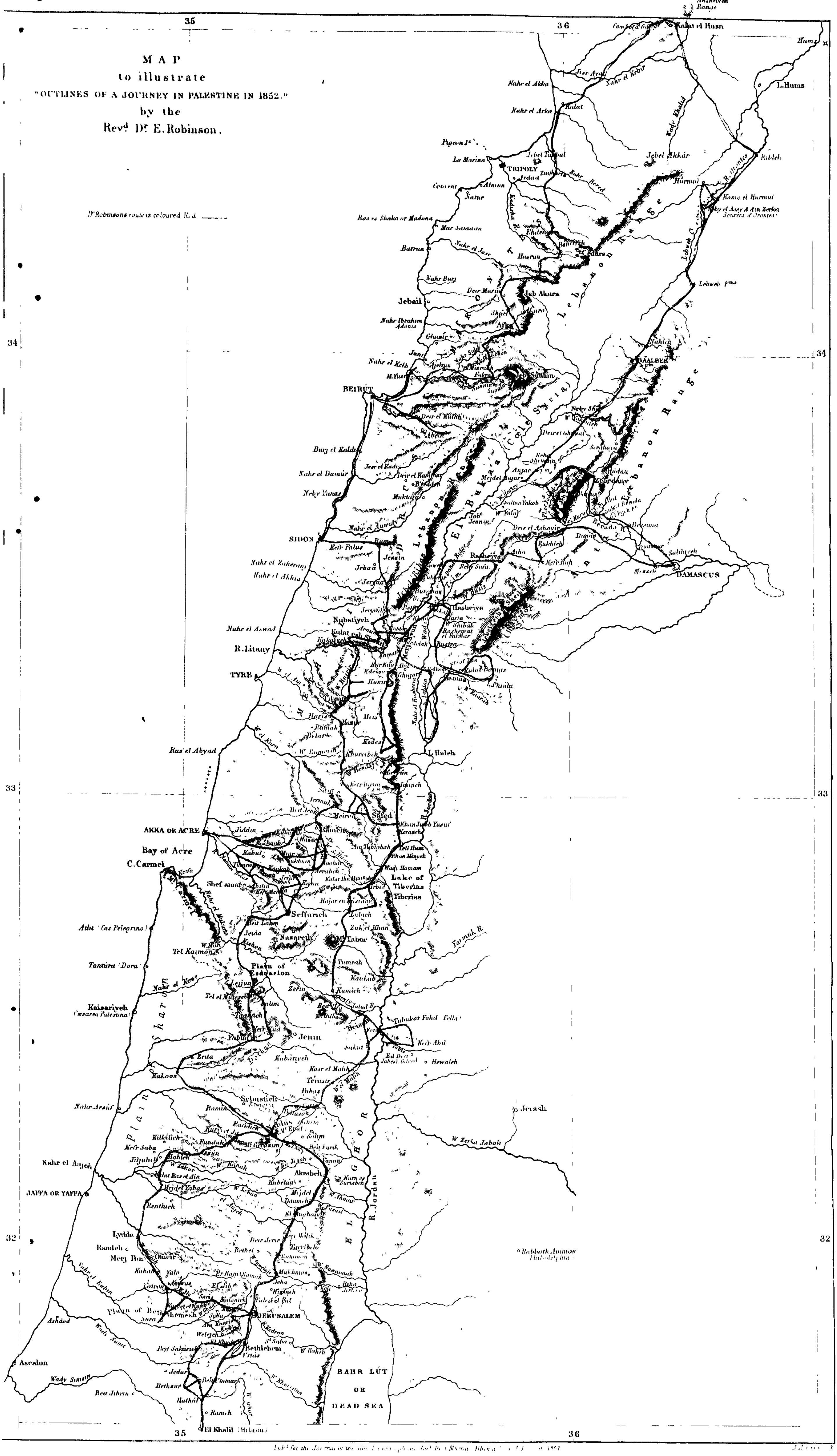
AUSTRALIA.

With respect to that vast portion of Northern Australia which remains to be explored, you are well aware that the attention of this Society has been not only directed with general interest to the subject of such exploration, but that a specific scheme for its accomplishment has been distinctly under our consideration. The plan proposed by the Royal Geographical Society is, that the expedition should be equipped at Moreton Bay, and proceed from thence early in the year to explore the country from the mouth of the Victoria River southward, as far in the direction of its sources as practicable, and then eastward towards the Albert River and the Gulf of Carpentaria. It is proposed that the expedition should be conveyed from Moreton Bay by a vessel which should remain under the instructions of the leader, and be available for securing supplies, storing the collections, and rendering the assistance which was so much needed in the expeditions of Eyre, Kennedy, and Leichhardt. The examination of the country southward of the Victoria River and the Gulf of Carpentaria would probably determine the extent of the fertile regions in Northern Australia penetrated by Stokes and Leichhardt, as well as the northern limits of the central desert discovered by Sturt. And further, the expedition might be enabled to

conclude its labours by exploring the country between the gulf and the settlements on the eastern coast. It is indeed but recently that Her Majesty's Government, after giving ear to our recommendations, decided upon taking exclusively into its own hands the undertaking in question; and a vote of 5000*l.* has been obtained from Parliament for the purpose. I for one think that the Government decided wisely in adopting this resolve, which I apprehend by no means will be found to preclude us, should we see reason, from addressing to Her Majesty's Government any further suggestions which may occur to us. I am not, however, now that we are discharged from responsibility in the matter, able to state the exact present condition of the scheme. I can only state that it has been by no means abandoned, and that at the worst it has only suffered scarcely avoidable postponement in consequence of the absorption of official time and attention by the war. In the mean time, we are informed by Mr. G. M. Waterhouse, that at his suggestion the legislature of South Australia have voted 5000*l.* a year for two years towards the exploration of the interior to the N.W. of Gawler range, at the head of Spencer Gulf, and to the westward of Sturt's farthest. In the south and east another triumph has been achieved in the successful accomplishment of some 1500 miles of steam navigation up and down the river Murray, performed by Captain Cadell and Lieut.-Governor Young. It will be in your recollection that our own Sturt had already (1829) paved the way for this exploit, and I trust that this is an omen of the successes to be achieved in the north—that an expedition carefully matured and confided to able hands will achieve all that Leichhardt's lamentable loss has left unperformed—and that we may live to see Mr. Arrowsmith point out on the map the exact northern limits of that Central Desert which Captain Sturt discovered and partly penetrated from the south.

I have now gone through briefly and superficially such topics of present geographical interest as I am able to specify. It remains for me to congratulate you on the circumstance mentioned in the Council Report,—the assistance which we are about to derive from the liberality of Her Majesty's Government. Looking as I do for the best consequences to the public and ourselves from this measure, I consider myself fortunate in its having been adopted during my tenure of office. Fortune however is one thing, and merit is another; and I am bound, while I accept the one, to disclaim the other. It was during the first presidency of my predecessor Sir Roderick Mur-

chison that he originated the application to Government, on the success of which we have now to congratulate him and ourselves. This was followed up by a memorial addressed by our Council under his second presidency to our Vice-Patron, Prince Albert; I find him in 1852 at our anniversary meeting still expressing hopes for the success of these efforts; and as his successor in 1854 I am here to share the advantage, but not the honour of the result. I cannot omit to mention that a voice justly potential in these matters, that of our associate, Mr. Joseph Hume, has been strongly raised in our favour. Such has been the advocacy; but even such advocacy would have failed, if it had not rested on substantial evidence of the activity of your proceedings, the value of your publications, and the evidences of the devotion of talent and valuable time on the part of our acting associates to the concerns of our Society. Having been hitherto a sleeping partner, I could address Her Majesty's Government with no authority of my own. What I could say, and did say, was to this effect:—"The objects of our Society are of a nature which attracts to its operations men not only of first-rate, but of very varied eminence in all departments of science and of the public service. We can command for our council and management the services not only of men devoted to some special scientific pursuit, but of others also who are familiar with the conduct of business in every shape. We can thus offer a guarantee for redeeming our obligation to the public. Trust us, and you will have no reason to repent of your confidence." This I considered was a business-like way of addressing a Chancellor of the Exchequer, and it had the advantage of being the truth, and one which I am confident from my own experience of the assiduous attendance on our Council meetings you will substantiate for the future. I am able to announce that our House Committee has all but concluded arrangements for a lease of fit premises, and that the situation seems to me everything we could desire; and I have reason to believe that in other respects the arrangement will well answer our purposes, as affording convenient space for our meetings, and accommodation for our increasing collections of maps and charts.



MAP
to illustrate
"OUTLINES OF A JOURNEY IN PALESTINE IN 1852,"
by the
Revd. Dr. E. Robinson.
Dr. Robinson's route is coloured Red
TRIPOLY
Jebail
BEIRUT
SIDON
TYRE
R. Litany
Ras el Abyad
AKKA OR ACRE
Bay of Acre
C. Carmel
Kaisariyeh
Caesarea Palestina
JAFFA OR YAFFA
Nahr el Aujeh
Lydda
Ramleh
JERUSALEM
Bethlehem
Ascalon
Ashdod
El Khalil (Hebron)
BAHR LUT OR DEAD SEA
R. Jordan
EL GHOR
Lake of Tiberias
Tiberias
L. Huleh
Safed
Nazareth
Tabor
Plain of Esdraelon
Jenin
Nablus
Sebustieh
Jerash
Rabbath Ammon
W. Zerka Jabok
Yarmuk R.
DAMASCUS
BAALBEK
Zebdany
Lebanon Range
Anti Lebanon Range
El Buka'a
Kulat el Husn
Ansariyeh Range
L. Hums
Hermel
Ribleh
Jebel Akkar
Hasbeiya
Rasheiya
Banias
Hunin
Tibnin
Kedes
Sharon
Plain
L. Huleh
36
35
34
33
32

PAPERS READ

BEFORE THE

ROYAL GEOGRAPHICAL SOCIETY.

I.—*Outlines of a Journey in Palestine in* 1852. By the Rev. Dr. E. Robinson, E. Smith, and others.

Communicated by the Duke of Northumberland.

Read December 13, 1852.

Ever since the publication of my work on Palestine I had cherished the desire of once more visiting that interesting country, partly for the purpose of examining some points anew, but still more in the hope of extending my researches into those portions which had not yet been explored.

In March of the present year (1852) I arrived at Beirût, on my way to carry these plans into execution. Here I was detained for some time—at first by the unsettled state of the weather, which continued variable much later than usual, some of the most violent storms of the season having occurred after my arrival; and then in order to be present at the annual meeting of the American Mission in Syria, which was held this year at Beirût. I desire here to express my deep feeling of obligation to the Mission for the interest manifested by them in my undertaking, and for the arrangements adopted to secure to me the aid and company of some one of the missionaries during the whole journey.

It had already been arranged that, before the meeting, I should accompany Mr. Thomson to Hasbeiya, and from thence visit the region of Bâniâs and Phiala. But just at that time the movements of the Druses, to evade the threatened conscription, made those districts insecure. I was therefore obliged to content myself with short excursions to the mouth of the Nahr el-Kelb, with its Egyptian and Assyrian tablets; to the remarkable temple at Deir el-Kŭl'ah; and to 'Abeih, the seat of the Boys' Seminary belonging to the Mission. To the latter place, under the guidance of Dr. De Forest, we took a less usual road, and visited a spot on a rocky ledge between two valleys, where there are many ancient sarcophagi cut in the scattered rocks. Their huge lids have been

removed, and lie mostly near by. The place is utterly lonely, and almost desolate, a few patches of wheat only being interspersed among the rocks.

On the 5th of April, the Rev. Dr. E. Smith and myself found ourselves once more on the way from Beirût to Jerusalem. On the 26th of June, 1838, we had together arrived at Beirût from our former travels, and we were now setting off from the same point to continue our explorations. We encamped for the night at Neby Yûnas (*Porphyrion*), more than halfway to Sidon. After the tent was pitched, the beds arranged, and the frugal meal ended, it was with an overpowering feeling that we compared the present with the past. Here we were in our tent, not the same indeed as formerly, but yet so like it as hardly to be distinguished—the furniture and all our travelling apparatus were similar—several things were the very same—and our places in the tent were as of old. The intervening *fourteen years* seemed to vanish away, as if we were but continuing a journey of yesterday. And when we reverted to the reality, we could not but gratefully acknowledge the mercy of God in preserving our lives, and permitting us once more, after so long an interval, to prosecute *together* the researches which we had together begun. We could not but regard it as a high, and certainly an *unusual*, privilege, thus, after fourteen long years, again to take up the thread of our investigations.

Under other circumstances we might, perhaps, have regarded it as an unpropitious omen, when, during the night, a violent sirocco wind arose, and blew down our tent upon us as we slept. It was pitched upon the sand, the only foundation which the neighbourhood afforded. At first we tried to sleep on beneath the fallen tent, but the flapping of the canvas compelled us to rise; and as the day was already breaking in the east, we decided to make an early start. This we did; and, fording the Auwaly near its mouth, reached Sidon soon after 7 o'clock.

The observations we made along the coast were not many; but they serve to correct the maps in a few particulars. We were now struck with the remains of the ancient Roman road, traces of which are visible from near the river Damûr for most of the way to the Auwaly.*

From Sidon we turned eastward towards Lebanon, and after a ride of more than 2 hours pitched our tent at Kefr Fâlûs. For some distance on the N. and E. of Sidon the mountains retire, and the interval is an open, uneven, rolling tract, highly cultivated,

* It is singular that no regular survey has ever yet been made of the Syrian coast; and it therefore gives us the more pleasure to learn from the highest authority that such a survey will probably be undertaken by order of the British Government during the next year.

and abounding in the finest fruit. From Sidon to the roots of Lebanon is about 3 hours, and then the mountain ridges rise by degrees.

The next day, our plan was to have kept on to Rûm and the high conical point of Ruweiset Rûm; then to have ascended and travelled along the high ridge of Jebel Rîhân, S. of the angle of the Auwaly, until, reaching the road from Jezzîn to Jerjû'a, we could descend to the latter village, situated high up on the flank of the mountain, on the N.W. brink of the great gorge of the river Zaherâny. We accordingly sent off our baggage-mules by the direct road to Jerjû'a, there to await our arrival. But we had proceeded hardly an hour on the way to Rûm before it began to rain, and, after waiting for a time in a peasant's house at Rûm, we were compelled to forego our purpose and take the nearest way to Jerjû'a. We reached that place by way of Jeb'a, after a long and dreary ride in the rain, and took refuge for the night and next day, in a dark and smoky room in one of the hovels of the town. This was the only time that our plan of travelling was frustrated by bad weather.

While lying next day at Jerjû'a we descended into the chasm of the Zaherâny, and visited its highest perennial fountain. Here we were surprised to find the remains of an ancient channel cut in the rock, and connected with an aqueduct further down, by which the water of this fountain was carried below the village around the flank of the mountain, and so to Sidon; many remains of such an aqueduct having already been known along the way to Sidon, though its beginning had not been found. The Sidonians had aqueducts from the Auwaly, much nearer, for irrigation; but they must have preferred this water for drinking. Even now, water for drinking is brought to the city from fountains, an hour or more distant. From Jerjû'a, Sidon bore N. 42° W.

From this high position the whole country, W. and S.W., was visible quite to the sea. It is rolling, uneven, and sometimes rocky, made up of hills and valleys and plains, but no mountains. The gorge of the Zaherâny here runs S.W., and turns nearly S. just below, along the W. base of Jebel Rîhân, for a short distance, when the river suddenly breaks through the low ridge which there forms its western bank, and runs off W. to the sea. But the valley along the base of Rîhân continues on, as Wady Jermûk, quite down to the Lîtâny; and one might be almost tempted to suppose that the Zaherâny once kept on its course to the latter stream. On the right bank of the Lîtâny, just below the entrance of Wady Jermûk, on a high cliff, in no connection with Lebanon, stands the magnificent but deserted fortress, Kûlat esh-Shûkîf, the *Belfort* of the Crusaders. It was in sight from Jerjû'a, bearing directly S., and a visit to it was included in our plan.

The next day (April 9th) we proceeded through a fertile and well-cultivated region, by way of the market-town Nŭbâtîyeh, to Arnûn, a poor village below the ridge of the castle. Here are a few ancient sarcophagi cut in isolated rocks. The ridge on this side is neither very steep nor high; we rode the distance in 20 minutes from the village, half of it being level ground. But, on arriving at the top, one looks down on the other side almost perpendicularly into the abyss of the Lîtâny, 1500 feet, as measured by Dr. De Forest with the aneroid. The top of the ridge is very narrow, and the castle occupies its whole breadth and more, being in some places built up from lower precipices. Its length is hence greatly disproportioned to its narrow breadth. On the S. of the castle the top of the ridge is levelled off, as a fine esplanade or parade-ground.

This fortress is known to us from the historians of the Crusades; but it needs only a glance to see that it dates from a much higher antiquity, and that the Crusaders did nothing more than repair it. The ancient portion, which still forms the main body of the building, is built with *bevelled* stones; not large stones, like those at Jerusalem, nor with a bevel so regular as is found in the tower of Hippicus, but yet of the same general character, though coarser. The sloping foundations of the towers are also seen here, and, indeed, some of the square towers may be said to be almost *fac similes* of Hippicus. The repairs of the Crusaders are everywhere easily to be distinguished, they have a totally different character. The chief work of theirs which remains is a fine Latin chapel, along the eastern wall. Perhaps some historical notice may yet be found, to fix the date of this fortress; but, at any rate, it cannot be later than the times of the Byzantine, or perhaps, the Roman dominion in Syria. Here was always an important pass from Sidon eastward. Nothing overshadows the castle except Jebel Rîhân on the N. and N.E., so that it forms a conspicuous object, visible at a great distance in all other directions. From it the castle above Bâniâs bore S. 60° E.

From esh-Shŭkîf we turned our course about W. by S. to the bridge over the Lîtâny (here running westward), near the village Kâ'kâ'îyeh. This bridge is in part an ancient structure, but the whole is very rickety. Here we encamped for the night.

Our next day's journey brought us to the castle of Tibnîn, the *Toron* or *Turinum* of the Crusaders. Our direct road to this place led up through the Wady Hujeir for nearly the whole distance; but, after an hour, we turned to the left up another deep valley, Wady Selûky, which has its beginning in the S.W. of Hûnîn, and drains the whole region. On the high southern brow of this valley we came, after another hour, to the hamlet Kŭbrîkhah, where are the remains of a temple, with several columns

still standing, with Ionic capitals. Hence we struck off again obliquely to Wady Hujeir, at a point where another temple once stood on its western side, of which only one or two columns remain.

The fortress of Tibnîn is on the summit of an isolated hill, and covers much more ground than that of esh Shŭkîf. It is also much more a work of the Crusaders; though several courses of bevelled stones on the outside show that they built it upon earlier foundations. It is now in ruins, except the gateway, where a family of Metâwĭleh Sheikhs have built a house within the walls, which they make their home. Here Jerjû'a bore N. 24° E. and the castle esh-Shŭkîf N. 42° E.

From Tibnîn we took a course S. 60° W., crossing our former route at Harîs (not Hadith); and, after another hour, turned up the ridge on the right side of Wady el-'Ain, on the road from Rumeish to Tyre, to Yâtir, a village overlooking the plain of Tyre, and evidently occupying an ancient site. Retracing our steps, we followed up Wady el-'Ain for a time S.E. and then turned to the right to a site of ruins called Hazûr, and also Hazîry, but not the Hazor of Scripture and Josephus. Hence we proceeded S.W. to Râmeh, on an isolated hill in the midst of a basin shut in by other high hills. This is, unquestionably, the *Ramah* of Asher, a different place from Ramah of Naphtali. Here are quite a number of ancient sarcophagi.

Half an hour W. of Ramah is a high hill, on which are seen from afar the columns and part of the architrave of an ancient temple. We visited the spot, but the columns are all too much weather-worn to distinguish the order of their capitals. The place is called Belât. From this high point we could look down over the whole mountainous and broken region intervening between it and the sea from Râs el-Abyad to 'Akka, and could trace the course of the ridges and valleys. Of the latter the great Wady el-Kŭrn is the principal; it was described by our guides as so deep and precipitous, that even eagles could not fly across it

We learned afterwards that both Râmeh and Belât had been visited a few weeks previously by Mr. Van de Velde.

From Râmeh we turned our course to Rumeish, and thence to Kefr Bir'im, on the road to Safed, half an hour E. of Sa'sa'. Here are the remains of two singular edifices. Of one a large part of the body is yet standing, with a portico of columns in front, of no Greek order. Behind the columns is a large portal in the middle, with a smaller door on each side. The whole is very elaborately decorated with sculptured ornaments. Of the other building only a portion of the front remains, standing alone in the fields. It is similar to the front of the other edifice, except that

on the sculptured entablature of the middle portal is a Hebrew inscription in the ordinary square character of the present day. It is much defaced; and so far as it can be read, merely invokes "peace" upon the founder of the edifice, but without legible name or date. If the inscription be coeval with the building, it marks it as a Jewish synagogue. That it and the other building actually were such is also evident from their resemblance to the ruined building at Meirôn, which the Jews still hold to be a synagogue of their fathers. We afterwards found the remains of similar edifices, marked by a very peculiar architecture, and some of them quite large, at Irbid, Tell 'Hûm, Kedes, and perhaps other places in Galilee. All this would seem to mark a condition of prosperity, wealth, and influence, among the Jews of Galilee during the early centuries of the Christian era, of which, neither their own historians, nor any other, have given us any account. These edifices must have been coeval with their flourishing schools at Tiberias.

The next day (April 14th) took us first to Meirôn, whence, after examining the sepulchres and the ancient synagogue, we turned our course up the mountain W., and crossed the high ridge of Jebel Jermûk and the next valley to Beit Jenn. This village lies high up on the declivity of the ridge W. of the great valley, here running N.W. and forming one of the main heads of Wady el-Kŭrn Beyond this western ridge, in a basin from which goes out another great branch of Wady el-Kŭrn, is the village Bukei'a, inhabited in part by Jews occupied with agriculture. On this account they are supposed by some to be a remnant of the ancient Jewish inhabitants of the land, who have never been driven out by the later masters of the country, whether Christians or Muhammedans.

Turning S. from Beit Jenn we came out, after half an hour, upon the brow of a pass in the ridge of mountains, here running from E. to W., looking out over the whole of southern Galilee. This point affords one of the widest and finest views we met with in our whole journey. Some 1500 or 2000 feet below us was the splendid plain of Râmeh (the *Ramah* of Naphtali), covered with groves of olive-trees and fields of grain, while beyond were other ridges and plains, through which we were to pass. Through this long plain of Râmeh runs the great road from 'Akka to Damascus.

Singularly enough this plain has no outlet at either end. Its eastern part is drained through a gap in the southern ridge into the next plain, and so through Wady Sellâmeh to the lake of Tiberias. The western portion is in like manner drained through a similar gap in the same ridge into Wady Sha'ab, which runs down W. to the plain of 'Akka. On the southern ridge, E. of the

former gap, is a high rounded eminence, called Tell Hazûr, from a small ruin on its N.W. declivity. This also cannot be the Hazor of Scripture and Josephus, for that was adjacent, not (like this) to the lake of Tiberias, but to the waters of Merom or Samochonitis, now the Hûleh.

We descended to Râmeh, lying still high on the lower and cultivated declivity of the mountain. It has few traces of antiquity. We then crossed the plain obliquely S E. and ascended the southern ridge, around the eastern side of Tell Hazûr, to the large village el-Mŭghâr upon its south-east side, overlooking the plain below. This place is probably ancient, but no corresponding name is found in ancient writers. From this point we visited the ruin of Hazûr, and also ascended the Tell.

The plain now before us does not, like that of Râmeh, extend unbroken between the ridges on the N. and S. throughout their whole length, but is divided near the middle by a lower ridge running obliquely across it from N.W. to S.E. between the two parallel ridges. The eastern part was now before us, drained eastward by Wady Sellâmeh, which comes in from the plain of Râmeh, and enters the lake of Tiberias as Wady er-Rŭbŭdîyeh. It has its name from an ancient site, Sellâmeh, on the western side of this part of the plain, the *Selame* or *Selamis* of Josephus.

From el-Mŭghâr we made a short day's journey, descending and crossing the plain on a S.W. course, and then crossing the oblique ridge into the western portion of the plain. A large part of this is so level that a lake is formed upon it in the rainy season, while the part further W. is drained by the Wady Sha'ab to the western plain. Keeping along on high ground near the southern hills, we came to 'Arrâbeh, lying in a nook among these hills. It is doubtless the *Araba* of Josephus. One hour further W., and in full view, is Sŭkhnîn, the *Sogane* of that writer, and mentioned by him in connection with Araba. These names, as also *Selame*, are found in the map of Galilee, by Schultz, but are not correctly placed.

At 'Arrâbeh we were detained two nights, mainly on account of the lameness of one of our horses. This at last compelled us to turn down to 'Akka, which did not lie in our original plan. We therefore went to Sŭkhnîn, where are some ancient remains with bevelled stones. From hence the direct road to 'Akka passes by Mi'âr, on the brow of the hills overlooking the western plain. We, however, turned more to the right, in order to visit a ruin of which we had heard, called Kŭbarah. In this name may be recognized the *Gabara* of Josephus, which he mentions along with Tiberias and Sepphoris, as one of the three principal towns of Galilee. We made a great descent to the bottom of Wady Sha'ab, at a point whence a good and level road led to 'Akka,

and then turned N.E. up the northern ridge, and across table land to the brow looking down into the plain of Râmeh. Here are the remains of Gabara, consisting of the ruins of a large and strong fortress, with the walls and foundations of houses and cisterns, indicating an important place. The remains of antiquity found here are much more extensive than those existing at Seffŭrieh. Râmeh was here in sight, bearing N. 75 E.

On the way to 'Akka we saw on our left, among the lower hills, the village of Kabûl; and afterwards, far on our right, another village on the declivity of the hills called 'Amkah, on the S. side of the deep ravine now called Wady Jiddîn, from the ruined castle of that name on its N. bank. These villages correspond in name to the *Cabul* and *Beth Emek*, of the tribe of Asher, and the deep valley may then perhaps be that of *Jiphthah-el*. Both these places had been seen and recognized by Dr. Smith during a former journey.

We remained in 'Akka over Sunday, and starting again on Monday morning (April 19th) we took the road for the hills again, by way of 'Abilîn. Our guide, however, finding that we desired to visit Jefât (*Jotapata*), proposed to take us a shorter way by Tŭmrah and Kaukab. To this we assented, and climbed the rough acclivity back of Tŭmrah by a blind and unfrequented path. Jefât is E. of Kaukab: we reached it in 40 minutes, also by a blind path. This isolated Tell, first visited by Mr. Schultz, corresponds in every particular to the description of Josephus, but there exists not the slightest indication that a fortress or any thing else ever stood upon it. The surface is naked rock, with one or two small cisterns now used for flocks; but not a trace of a wall or foundation of any kind. It is shut out from any prospect by high hills on all sides, except that, through a narrow valley running down S.E., a small strip of the plain el-Bŭttanf is visible.

Down this valley we proceeded to the ruins of *Cana*, of Galilee, which lie at its mouth, on the edge of the hills which skirt the Bŭttanf on the N. The remains are those of a large village with well built houses, but without any special marks of antiquity. The place is known as *Kâna* and *Khirbet Kâna* to all the people of the region round about, both Christians and Muslims. We turned now westward along the base of the northern hills to Kefr Menda, and encamped for the night.

The next day (April 20th) we passed through Seffûrieh, with its ancient tower, and leaving its great fountain on our left, a favourite camping-ground of the hosts of the crusaders, we kept on S.W. to Beit Lahm, the *Bethlehem* of Zebulon, a miserable village, with no trace of antiquity but its name. It had already been visited by Dr. Kally. We continued on to Jeida, and then

crossed the great plain of Esdraelon in the direction of Lejjûn, encamping for the night in the middle of the plain. Here we had on our right the mouth of Wady Milh, at the base of Carmel, up which valley a road from 'Akka leads, and crosses the ridge to the plain of Sharon. Just at the mouth is a hill called Tell Kaimôn, in which is to be recognized the *Camon* of Eusebius, situated six Roman miles from Legio towards Ptolemais. It is still near the road from Lejjûn to Akka. May it also perhaps once have been the *Jokneam* of Carmel?

The next morning we crossed the Mukŭttá (Kishon), running over a gravelly bed between banks from 15 to 20 feet high. Passing through tracts of the utmost fertility, we came at last to the great Tell el-Mutesellim, which stands out in front of the hill, on the back of which Lejjûn is situated. This Tell affords a magnificent view of the rich plain; and as we looked towards Taanach, we became fully persuaded that we had before us the battle-field of Deborah and Barak. Whether Megiddo lay upon this Tell, as some suppose, but of which there is now no trace; or whether it lay upon the hill back, the S. side of which is now occupied by Lejjûn; it was at any rate a sightly and important place, and might well give name to the plain. The stream flowing down from Lejjûn is still the largest perennial tributary of the Kishon.

That Lejjûn is the representative of the more ancient Megiddo, there can be little doubt. Maximianopolis, to which Raumer assigns the succession, partly because it is marked as on the route from Cesarea to Jezreel (Zer'în), must have lain more to the E. We saw afterwards the course of that route through the hills, more eastward, and saw too that for it to pass through Lejjûn would be a large circuit towards the W. Maximianopolis may not improbably have lain at or near the large village Sâlim.

Near Lejjûn passes the great road from Damascus to Ramleh and Egypt. We followed it to the top of the pass, and then, without descending, took a more south-easterly course to Um el-Fahm, on the brow of a hill looking towards the western plain. Hence we proceeded on high ground south-eastwards along the watershed between the heads of valleys running to the northern and the western plains, and came for the night to Ya'bud, on a hill overlooking another beautiful plain, extending far to the E. and N.E., and bending round Ya'bud toward the West. Far in the N.E. we had before seen Kŭbâtîyeh, and in the northern part lies Kefr Kûd, the ancient *Capharcotia* of Ptolemy. Here too, in the middle of the eastern plain, we were delighted to find the name of Dothân (Dothan); it is now a fine green Tell, with a fountain on its southern base, corresponding entirely with the position assigned to it by Eusebius, 12 Roman miles N. of Samaria.

We learned afterwards from Mr. Van de Velde, that he too had unexpectedly lighted upon the place some weeks earlier.

In this connection, we were told at Ya'bud, that the great road from Beisân and Zer'în to Ramleh and Egypt still leads through this plain; entering it W. of Jenîn, passing near Kefr Kûd, and bending south-westwards around Ya'bud to the western plain. It is easy to see, therefore, that the Midianites to whom Joseph was sold in Dothan, had crossed the Jordan at Beisân, and were proceeding to Egypt along the ordinary road. It is obvious too that Joseph's brethren well knew the best places of pasturage. They had exhausted that of the Mŭkhna by Shechem (Nâblus), and had afterwards repaired to the still finer pastures here around Dothan.

On the day after (April 22nd) we followed down the road by which Joseph was carried away to Egypt, to Zeita and 'Attîl on the borders of the western plain, and then turned up again into the mountains on the way to Sebŭstieh and Nâblus. We supposed we were here upon Herod's road from Cesarea to these places, and in many parts there were evident traces of an ancient road, but we saw no where any paved way. We spent the night at Ramîn. The next day, in crossing a rocky ridge some distance S. of Sebŭstieh, and before we struck again our route of 1838, we found evident remains of the ancient road over the ridge; here were also columns and other traces of an ancient site, now called Dibbârieh.

We spent the day in Nâblus, and again visited the Samaritans. Both the priests, father and son, whom we saw before, are still living; but the elder seemed to be superannuated, and the younger is now the acting head of his people. Learning that we desired to see him, he came to us, conducted us to their place of worship, showed us their manuscripts, and loaned of his own accord to Dr. Smith a fine copy of their Arabic version of the Pentateuch, to be used by him in the new Arabic version, in which he is engaged.

From Nâblus we bent our course again S.W., on the direct road to Ramleh. We turned around the shoulder of Mount Gerizim by Râfidieh, and passed by Kuryet Jit (the ancient *Gitta*) and Funduk, leaving Fer'ata (*Pirathon*) at no great distance on our left. As we began gradually to descend towards the plain, we had on our left a large and deep valley called Wady Kânah, which we may with probability regard as the brook *Kanah* of the book of Joshua (xvii. 9), the boundary between Ephraim and Manasseh. Lower down it takes a different local name. We passed on by 'Azzûn, and down the long Wady of that name to its entrance into the plain, opposite Kilkîlieh and Kefr Sâba. Turning left a little to Hableh on the low hills S. of the Wady, we encamped over Sunday, in full view of Kefr Sâba, and also of Jiljûlieh further S. These are the *Antipatris* and western *Gilgal*

of Scripture; and were visited and described by Dr. Smith in 1844.

At Hableh I was gratified at finding close by our tent an ancient wine-press hewn in the rock. It was complete, with the upper shallow vat for treading the grapes, and the lower deeper one to receive the liquid, and might still be used, were there here grapes to tread. At present there are no vineyards in all this region. I would have given much to transport this wine-press *in natura* to London or New York.

On the following Monday (April 26th) we proceeded southwards along the foot of the hills; crossing in a quarter of an hour from Hableh the continuation of the great Wady Kânah here called Wady Zâkûr and Wady Khureish, from two sites of ruins on its banks. It was here said to come from the S. end of the plain el-Mŭkhna. It passes off S. of Jiljûlieh, and joining the Wady from Kefr Sâba, goes to the Aujeh. We had the great fountain of the Aujeh, at Râs el-'Ain, on our right in the low plain. From Mejdel Yâba we turned S.W. into the plain, entered the Damascus road, and came on it to Renthieh. This village, so far as the name is concerned, might well be held to be the ancient *Arimathea;* but the historical notices seem to fix that place, not in the toparchy of Lydda, where this village lies, but in that of Fibneh (*Timnath Thamna*), farther eastward.

We came to Lydda, and passed on by way of Kubâb to Yâlo, the ancient *Ajalon*. The road lay much of the way along the Wady 'Atallah, which drains the plain of Merj Jbn 'Omeir, and runs down on the E. and N. of Lydda. Yâlo we formerly saw from the upper Bethhoron, and our view of it and the adjacent region was correct, except that the plain of Merj Jbn 'Omeir is bounded by the ridge, on the N. side of which Yâlo lies, and does not extend itself towards the S.W. beyond Kubâb, as we then supposed. The name Jbn 'Omeir belongs to the district, and not specially to the plain. We were told afterwards of a ruined place in the mountains E of Yâlo, and not very far off, called Kefîr. It probably is the site of the ancient *Chephira* of the Gibeonites; but we heard of it only too late to visit it.

We proceeded the next day to 'Amwâs, the ancient *Emmaus* or *Nicopolis*, situated between Yâlo and the Jerusalem road, twenty minutes N. of the latter. It is a poor village, with a fountain, and the ruins of an ancient church, a fine structure of large hewn stones. It lies on a declivity, looking westward out over the great plain.

Close upon the S. side of the Jerusalem road is the Tell and ruin of Latrôn. The ruin is that of a fortress, some of the lower parts of which appear to be Roman work. This is the place which formerly was pointed out to us at Tell es-Sâfieh as 'Amwâs. From it the latter Tell is visible. The Wady 'Aly, along which the

Jerusalem road leads up the mountain to Sârîs, here bends around on the S. of Latrôn, and then turning N.W. it passes down E. of Kubâb to Wady 'Atallah.

We now kept on southwards to Sŭr'a, the ancient *Zorah*, the birth-place and residence of Samson. We saw it from the S. on our former journey, on a high peak overlooking the fine plain of Bethshemesh. We approached it now from the N., on which side the elevation is not more than half as great. Some 20 minutes before reaching Zorah, we came to a noble fountain, and afterwards passed no less than twelve women toiling up to the village with jars of water on their heads. This is a very common sight in Palestine; but in the present case the hill was very steep; and we remembered, that in all probability the mother of Samson must often have visited this fountain, and toiled homeward with her jar of water in like manner.

Our object in visiting Zorah was to obtain a view of the country between it and Jerusalem, and especially to ascertain the course of the great valleys. We found the plain of Bethshemesh extending up some distance N.E. of Zorah into the mountains, and could see the chasms of two great valleys running down into it. About E.S.E. of us was the mouth of the great Wady, which comes down by Kulônieh, and further N. that of Wady Ghŭrâb, one branch of which begins near Sârîs, and another above Kuryet el-'Euab. On the high ridge between this latter and the Wady of Kulônieh, lie Sôba and Kŭstŭl.

We wished to proceed to Jerusalem along this same ridge by Kesla and Sôba, but, after starting, learned that the road was impracticable. The usual road from Sŭr'a is along the western declivity of the ridge of Sârîs to Wady 'Aly. We took this route at first, but turned up by a very steep and difficult ascent, and gained the top of the ridge at Mihsîr, a flourishing village, surrounded by olive-groves, an hour W.S.W. of Sârîs. We kept along on the top of the ridge, having a branch of Wady Ghŭrâb below us on the right, to Sârîs, and thence took the ordinary and very dreary road to Jerusalem by Kuryet el-'Enab, the ancient *Kirjath Jearim*. We reached the city at 8 o'clock on the morning of April 28th, having been more than three weeks on the way from Beirût.

In Jerusalem and the vicinity we remained twelve days, diligently occupied in examining the objects of interest, and investigating the various questions connected with ancient topography. We constantly enjoyed the kind attentions and ready assistance of Dr. M'Gowan and other gentlemen connected with the English Missions, as also those of our own countryman, Dr. Barclay, now residing in Jerusalem. For all these our best thanks are due. Bishop Gobat had already left the country on a visit to England.

This is not the place to enter upon a discussion of the vexed questions connected with the historical topography of the Holy City. I may, however, be permitted to refer to a few particulars, which may serve to show how the public mind has been misled by statements and conclusions not founded on careful and correct observation.

First. In a published Plan of Jerusalem, to which are attached the names of the English engineers, Colonel Aldrich and Lieutenant Symonds, the *western wall of the Haram*, or enclosure of the great Mosk, is laid down with two retiring angles towards its southern end, that is, so that it does not continue straight through its whole length, but on its southern part, first turns eastward by a right angle, and then again by a second right angle. Great stress has been laid upon this Plan, as constructed from actual survey by scientific engineers, and therefore decisive as to the point in question. Yet it contradicts the Plan of Mr. Catherwood, made from actual measurements in the interior of the Haram, as well as all other Plans of the city before or since.

Through the kindness of Dr. M'Gowan we were able to make some observations having a bearing on the subject. He and Mr. Colman accompanied us to the barracks, the residence of the military governor of the city, at the N.W. corner of the Haram, from the roof of which there is a near view of the whole interior. Here, not only the general view showed that the western wall is *straight* throughout, but a special circumstance added strength to the conviction. We had already noticed two cypress-trees standing just inside of this wall near the S.W. corner of the Haram and S. of the house of Abu Sa'ûd, so called. These two trees we could now see standing in a line with the northern part of the wall as we looked along the latter. We afterwards repaired to the house of Abu Sa'ûd, to which the professional services of Dr. M'Gowan had procured for us a ready admission. It is built directly upon the western wall, at some distance from the southern end, and is partly without and partly within the enclosure of the Haram, a passage being broken through the wall in each story. We were introduced into the uppermost room, where from the windows there is a view of the wall further N. and of the southern part of the enclosure. We were also conducted through the buildings in the S.W. corner of the Haram, but not, of course, to any place where we should be exposed to public view. The result was as before, that the western wall is straight throughout. Such too was the testimony of the very intelligent owners of the house, one of whom occupied the post of Secretary under the Government, and had charge of the Census.

After all this I can only repeat the expression of my surprise, that the names of scientific engineers could ever have been attached to the publication of so manifest an error.

Second. In respect to the *Valley of the Tyropœon*, so called by Josephus, the new theory, first broached since 1840, and contradictory to the current views of all former centuries, transfers the beginning of this valley from the Yâfa gate to the Damascus gate. This is really a question of interpretation between the supporters of this hypothesis and Josephus. But so long as with one voice they follow him in making Zion terminate at the street leading down from the Yâfa gate, all the laws of philology and hermeneutics require that they should follow him further, and like him, make the Tyropœon, and then Akra, lie *adjacent* to Zion. By no law of language can it be justified that one part of the historian's description should be followed and another part left out of view.

Third. In connection with this transfer of the Tyropœon it has been asserted that there is no ridge N. of Zion, and no rise of ground in that direction. This statement needs correction. The street which runs N. in the rear of the Church of the Sepulchre rises very considerably in that portion of it, although at its southern end it appears to decline northwards. But just at this southern end is the Greek church of St. John, beneath which there has been dug out a chapel, standing on ground at least 25 feet below the present level of the two streets at that point. In the Bazárs the water is conducted off by a sewer running towards the S.; and further N., opposite to the Church of the Sepulchre, the main street is carried along a covered passage cut through a ridge of solid rock. Turning down at the S. end of this covered passage, along the street leading by Helena's Hospital, so called, we enter on the left the court of the Prussian Consul, and ascend by two flights of steps to his garden and dwelling (formerly Mr. Lanneau's) on the same ridge. Following the same street further down we find it crossing very obliquely the crest of the descending ridge If, again, from the street running S. along the bottom of the depression or valley, one enters the street next S. of the one just described, he first ascends *W.* rather steeply; the street then turns *N.*, and he ascends quite as steeply until it turns W. again. Here another street comes into it from the *S.* up a rather steep ascent From all this, it appears that there is on the N. of Zion a rocky ridge, on which the Church of the Holy Sepulchre stands, and which ends below in a rather broad point, about in a line between the said church and the great Mosk. This is the ridge, which, with the adjacent tract, according to the description of Josephus, must be regarded as Akra.

That the Tyropœon itself, probably a narrow ravine, should no longer exist at its former depth is not surprising when we consider the immense masses of rubbish with which the city is everywhere covered. The excavated chapel under the church of St. John shows how enormous has been the accumulation along the very line in question.

Fourth. In connection with the same transfer of the Tyropœon have been adduced the channels of living water said to enter the city by the Damascus gate. That a report is current among the native inhabitants, that a trickling of water may sometimes be heard at that gate, we formerly learned and have related, and the same story is now repeated every day. But we never found a person who professed that he himself had ever heard this trickling, neither a native nor much less a Frank. Yet it may well be true, and that without being wonderful, seeing there are two large cisterns just by the gate. But, in addition to this supposed channel, one writer asserts that just outside of the Damascus gate, on the right hand, is a large reservoir of living water flowing into the city, from which many fountains were formerly supplied. Another writer speaks of a well of living water in the Church of the Flagellation, and regards it as connected with this channel at the Damascus gate. Both writers appeal also to the taste of these waters, as resembling that of the waters of Siloam.

It seemed important to prove the accuracy of these statements. We went, therefore, to the Damascus gate, in company with some of our friends, and found not only a cistern on the right side of the gate, but also one on the left side. They are both, however, merely ordinary *cisterns of rain-water*, filled by the water which runs from the road and fields above, and is conducted into them by small channels or furrows on the surface of the ground—these we saw. We tasted of the water in the right-hand cistern: it had, indeed, a flavour somewhat like that of Siloam, but it was here merely the taste of impure water. We then tasted of water from the other cistern, and found it almost putrid. We afterwards repaired to the Church of the Flagellation. In the outer court is a large cistern of good rain-water, collected from the roofs and courts. In an inner court is a smaller reservoir, and the attendant began to relate how the water in it was never exhausted, and never stood higher nor lower in the reservoir. We tasted it, and found again the Siloam flavour. But, looking at the water which had just been drawn up, we perceived that it was full of the wriggling worms and other animalculæ found in impure rain-water. Here then was another ordinary cistern, and the peculiar taste was accounted for.

Fifth. Of the *second wall* of the city, Josephus says that it began at the "Gate Gennath" in the first wall, and ran "circling around" to the fortress Antonia. The Gate Gennath has, therefore, usually and naturally been regarded as situated near the tower of Hippicus. But the modern theory removes this gate eastward to a point in the wall along the brow of Zion, from which the said second wall would run northwards along the street of the Bazárs. The grounds and arguments brought forward in aid of this

view by two of its earliest supporters have all been rightly rejected by the latest, with the exception of two, and these would seem to be hardly more tenable than the rest. These are the *tradition* of two gates along this line, one the *Porta judiciaria*, so called, on the *Via dolorosa*, the other on the brow of Zion. Now, as to the *Porta judiciaria*, without which the whole argument falls to the ground, there is no appearance nor evidence that a gate ever stood in that spot—a single lone column does not of itself imply a gate. And further, of the *Via dolorosa* itself, now held to be so authenticated by tradition, there is no historical trace until long after the Crusades. On the contrary, historical documents clearly show that in the thirteenth century the streets now so called were known among the Christians by other names.

In opposition to such a course of the second wall, we have, first, the manifest absurdity of supposing that a wall for the defence of the city would be carried along the middle of a declivity, where it would everywhere be commanded by higher ground outside. Then, too, we know from Josephus, that there was a gate, by which water was brought into the tower of Hippicus; of course, it was near Hippicus. In describing the approaches of Titus, after he had taken the third or outer wall, the historian speaks of the next wall (the second) as extending up to that gate. Hence we have the second wall described in two opposite directions; once, as beginning at the gate Gennath, and running northwards, and again, as running southwards up to the gate near Hippicus. The inference is conclusive, that the gate Gennath and the gate by Hippicus were identical.

Sixth. One writer regards the course of the third or outer wall of Josephus as having been in the main the same with that of the present northern wall, and denies that the ancient city extended farther N. than the limits of the modern one. But the multitude of ancient cisterns existing over a large tract outside of the present wall on the N., and in no other quarter, proves, conclusively, that a very considerable extent of ground was here occupied of old by the streets and dwellings of a portion of Jerusalem.

From these *six* specimens it will be obvious that I did not find the statements and hypotheses of recent writers sufficiently supported by observation, to lead me to any important change in the views of the topography of Jerusalem expressed in my former work, and current for centuries. I might go on to add other like examples, but must leave them for another opportunity.

From these specimens, too, it might possibly be inferred, that these recent inquiries have been carried on, not so much with a desire to arrive at the simple truth, as to find support for preconceived opinions or favourite hypotheses. The authority of

tradition, it might be said, was, at all events, to be sustained, even when unsupported by any evidence from history.

From Jerusalem we made an excursion of a day to the Wady el-Werd (Valley of Roses) and its three fountains, S.W. from the city. One of its main heads is in the Plain of Rephaim, and the valley enters the great Wady of Kulônieh, near a village called 'Akûr. The valley has its name from the extensive fields of roses cultivated in it. The fountains are 'Ain Yâlo, 'Ain Hŭnîyeh (St. Philip's), and that of Bittîr; the latter being much the largest. We passed near the Convent of the Cross in going out, and returned by Welejeh and the ridge above the village and convent of 'Ain Karim.

Another excursion, of 2 days, took us to the neighbourhood of Hebron. In our former journey we had been compelled to hasten over the road between Hebron and Jerusalem without a guide, and hence it had been in some respects our least satisfactory day in Palestine. We now took the same road, stopping at Urtâs on our way, where Mr. Meshullam now cultivates rich and well-watered fields along the bottom of the valley. The German colonists, who were here two years ago, were in his employ, but are since scattered. We went also to Bethzur, and visited again the vast and inexplicable foundations at Râmeh; as also the remains upon the hill. Thence returning to Halhûl, we encamped for the night near its sightly mosk.

On our return to Jerusalem, next day, we kept along as near as possible to the western brow of the mountains. We passed through Beit Ummar and near to Jedûr, and afterwards came to Beit Sakârieh, on a high and almost isolated promontory, overlooking the western region of lower hills. It bears every appearance of having once been a strong and impregnable fortress. It is, without doubt, the site of the ancient *Bethzacharia* of Josephus and the historian of the Maccabees; since, besides the identity of name, its position relative to Bethzur is precisely the one required by the accounts of those writers. We passed on through the little village el-Khŭdr, and struck the road from Hebron to Jerusalem just W. of Bethlehem.

On the 10th of May we left Jerusalem to proceed northwards, and reaching the brow of Scopus, I turned and looked upon the Holy City for the last time. We hasten on, leaving on our right the conspicuous Tuleil el-Fûl, the ancient *Gibeah* of Saul, and came to *Ramah* of Benjamin. Thence we turned eastward to the Tombs of the Amalekites, so called, in the low plain in the valley N. of Hizmeh. These are merely four low heaps of rough stones, in the form of long parallelograms; the largest is 102 feet long by 27 feet broad, and 3 or 4 feet high. There is no appearance of antiquity about them, nor of any sepulchral character. Our

guide from er-Râm called them Kubûr Isra'în (Tombs of the Israelites); but we heard also the other name.

We kept on in the same direction to Khirbet el-Haiyeh (Serpent), on the ridge between this valley and Wady Suweinît, near the southern brow of the latter. This place, on account of the name, has recently been brought forward as the site of the ancient Ai. But there is no affinity between the two names; since Ai contains the tenacious letter *Ayin*, which the other has not. And further, Ai was near to Bethel, and of easy access from it; but this spot is at least nearly 3 hours distant from Bethel; and the deep and difficult Wady es-Suweinît lies between. There is here no valley on the W., except the low open plain we had traversed, whilst towards Jeb'a there is a ridge.

We turned now to Jeb'a, the ancient *Geba*, and again crossed the deep valley to Mŭkhmâs, passing in it the two steep hills, the scene of Jonathan's adventure with the Philistines' garrison: they struck us now, more than before, as well adapted for such outposts. At Mŭkhmâs we encamped, and next day passed on over the rocky Tell of Rŭmmôn, and along the declivity below Taiyibeh on the W., to Deir Jerîr. Here we entered upon new ground, which as yet is a blank in the maps. We crossed obliquely a very high ridge, and came in about an hour to Kefr Mâlik, on a high point overlooking the deep Wady, going down to the Aujeh. Crossing this, and ascending again to a higher, uneven plateau, we came in an hour more to el-Mughaiyir, a large village, and in another hour to Daumeh, the *Eduma* of Eusebius: here we encamped. From a hill just by we had a wide view of the Ghôr directly below us, and of the ridge of Kŭrn es-Sŭrtabeh, not far distant in the E.N.E. Just under our feet, in an offset from the Ghôr, was Fusâil, the site of the ancient *Phasaëlis*.

The next morning, after crossing the branch of the great Wady Fusâil, we came to Mejdel, a very old place, with an extensive view of the Ghôr, and a nearer one of Kŭrn es-Sŭrtabeh. An hour and a half brought us now to 'Akrabeh, a large and flourishing town, which of old gave its name to the toparchy of *Acrabattene*. The situation is fine, on the base of a high ridge on the northern side of an open valley or plain, which just here has its watershed, running down E. to Wady Ahmar, under Kŭrn Sŭrtabeh; and also W., as Wady Bîr Jenâb, by Kŭbelân to the western plain. From 'Akrabeh we took a circuitous route northwards, by Yanŭn to the S.E. corner of the little plain of Sâlim, E. of Nâblus; and then descending and passing through Beit Fŭrîk, we crossed the waterbed of the Mŭkhna, running through the W. end of the little plain, and came to Nâblus for the night.

The following day (May 13th) we turned again N.E., towards

the Ghôr. At the mouth of the valley of Nâblus, on the N. side, are the ruins of a village called 'Askar, which name has sometimes been compared with the Sychar of the New Testament. It has, however, the letter *Ayin*, which precludes any such affinity. We passed on northwards along the plain, which is here narrow, and soon breaks down by a deep and singular gorge to the Wady Fâria and its wide rolling tract. We turned more to the left and ascended steeply to Tŭllûzah, lying N. of Mount Ebal, and surrounded by immense olive-groves. This seems to be the ancient *Tirzah*, for a time the residence of the kings of Israel; though it now bears few marks of a royal metropolis. Hence we crossed the branches and intervening higher plains of Wady Fâria to Tûbâs, in 2½ hours. This is the *Thebez* of Scripture, where Abimelech met his death. It lies on a declivity looking E., and has a fine plain, with olive-groves before it. We kept on for less than an hour further to Teyâsîr, a small village, and there stopped for the night.

This village is near the head of Wady el-Mâlih, which we followed next day down to the Ghôr, climbing on our way to the ruins of a fortress, of moderate size, Kŭsr el-Mâlih, once commanding a pass. The descent is here very gradual, the hills become lower and lower, and gradually lose themselves in the plain. In Wady el-Mâlih are springs of saltish water, blood-warm; and in its lower part is a running stream. As it crosses the Ghôr to the Jordan, there is on its northern side a broad low swell, extending from the western hills quite to the upper banks of the Jordan; the river being here crowded quite to the eastern part of the Ghôr. We kept along upon this swell, and came at its extremity to a low hill, on which are the slight remains of Sâkût, a name corresponding to the ancient *Succoth*. It looks down upon the lower valley of the Jordan, here a plain of some width; the place and banks of the stream are seen, but not the water itself.

We now turned N.W., through a lower portion of the plain, exhibiting the utmost fertility, and covered with the rankest vegetation. The grass and weeds came up to our horses' backs, and the taller thistles often rose above our heads as we rode along. On the higher plateau, nearer the western mountains, the inhabitants of Tûbâs and other villages cultivate wheat. They were now in mid-harvest; and we pitched our tent by the side of a colony from Tûbâs, who were dwelling in tents and booths, with their women and children, horses and donkeys, dogs and poultry. What struck us here especially were the many fountains and brooks in this part of the Ghôr, furnishing an abundant supply of water, and giving rise to a most luxuriant fertility.

Here we bargained with two young Sheikhs from Tûbâs, active and intelligent men, to take us on an excursion of a day across

the Jordan. Our object was to ascertain whether any place or ruin called Yâbis (Jabesh) still existed on or near Wady Yâbis; and in that way determine, if possible, whether the ruins at Tŭbŭkat Fahil were those of Pella. Eusebius gives the distance of Jabesh from Pella at 6 Roman miles, on the way to Gerasa (Jerash). We proposed to go first to Kefr Abîl (not Bîl), which lies high on the side of the mountain, not very far distant from the probable position of Jabesh Gilead; since the men of Jabesh had gone down by night to Beisân, and carried off the bodies of Saul and Jonathan.

We rose very early (May 15th), and sending our muleteers to Beisân, directed our course to the ford not far N. of Sâkût. Descending the steep upper bank of the Jordan, here 150 feet high, and crossing the low alluvial plain, which our guides said was never overflowed, we came to the ford. A narrow island, covered with rank vegetation, here divides the river into two branches; the eastern one being much the largest. The stream was rapid, and the water came up high on the sides of the horses. Having got safely over, we ascended at once the steep eastern upper bank, and crossed obliquely the narrow plain to the foot of the mountains, to reach the mouth of Wady Yâbis. As we approached the first hills we found ourselves suddenly surrounded by twenty or thirty armed men. They proved to be from the village of Farah on the mountain, and were here to harvest their wheat in the plain. They had recently helped to drive away the officer sent to enforce the conscription in their district; and they had now been watching us, thinking we might perhaps be coming from the government on a like errand. They were acquainted with our Sheikhs, and, finding all right, they took us to their encampment on the S. bank of Wady Yâbis, gave us coffee, and brought us bread and *leben*, which we left to our guides.

We now began to ascend the mountain by a smaller Wady just N. of the Yâbis. After half an hour the hills became higher and greener; and oak trees, the oaks of Bashan, began to appear, scattered like orchards upon the hills. After more than an hour we came out upon a prominent point, affording an extensive view over the whole northern Ghôr from Kŭrn es-Sŭrtabeh to the Lake of Tiberias. The whole southern part, from the Kŭrn to the Dead Sea, I had already seen. This eminence proved to be the brow of the first plateau of the mountain, along which we ascended very gradually through a region of the utmost verdure, and beauty, and fertility, to Kefr Abîl, near the foot of the next high ridge.

We found it deserted. The inhabitants had been implicated with those of Farah in the matter of the conscription; and seeing Franks approaching, (an event of unusual occurrence,) they had

all left the village. They were, however, not far off, and soon returned.

Wady Yâbis is a mile or more S. of this village. It breaks down from the higher ridge by a deep glen, in which is a place of ruins called Maklûb, as having been "overturned." It was said to have no columns. Lower down on the Wady, about S. from us, and on a hill on the S. side of the valley, is another ruin called ed-Deir; it is on the road from Beisân to Helâweh and Jerash, and has columns. This latter ruin seems to correspond well to the site of ancient *Jabesh Gilead;* but the name Yâbis now exists only as applied to the Wady.

We now turned to descend the mountain by a more northern path leading directly towards Beisân, computing, that if the ruins at Fŭbŭkah Fahil were those of Pella, we ought to reach the spot in about 2 hours. Our road to Beisân passed 10 minutes N. of the ruins, and we were opposite to them in just 2 hours. But our guides knew them only as el-Jerm, and we went on 10 minutes further before turning off to them. They lie upon a low hill or mound, having a broad area on its top, surrounded by higher hills except on the W., where is a plain, which also runs up on the N. side of the hill or mound described. As we approached from the N., we came upon ruins in the low plain, with many fragments of columns. The area on the hill is covered with like remains, and others are also seen below in the western plain. Below the hill, on the S.E. quarter, there is a large fountain, which sends off a stream towards the S.W. Near it was a small temple, of which two columns are still standing, and the valley below is full of oleanders. From men on the spot, we learned that the name of the place itself is *Fahil*, the word *Fŭbŭkah* (meaning a story of a house, a terrace) being here applied to the narrow plain which stands out like a terrace in front of the hills, several hundred feet above the valley of the Jordan below.

The situation of this spot in relation to Beisân and Wady Yâbis, the extensive remains obviously of a large city, the copious fountain, and also the name, left no doubt upon our minds, that we were standing on the site of ancient *Pella.* The ruins were discovered and visited by Irby and Mangles in 1817; but no idea of any connection with Pella suggested itself to their minds. Since that time no Frank traveller has visited the spot. The first public suggestion of the identity of the place with Pella, was given in Kiepert's map of Palestine, in which the name of Pella is inserted with a query. Our main object was now accomplished, in thus verifying the correctness of Kiepert's suggestion. Mr. Van de Velde, whom we had met again at Nâblus, accompanied us on this excursion at our invitation.

Descending from the terrace 500 or 600 feet to the plain below,

we came to the ford of the Jordan. Here are in fact three fording places, of which that lowest down is said to be the easiest; but we found it deeper and more rapid than the ford of the morning. The Sheikhs proposed, and we assented, that one of them on foot should lead our horses one by one across. In this way we crossed safely, the water coming up almost to the horses' backs. We pushed on rapidly through the glorious plain to Beisân, where our tent was pitched, and we remained over Sunday. This was our hardest day's work in Palestine.

Beisân has a splendid position, just where the great valley or plain of Jezreel sinks down by an offset or gradual declivity of 100 feet or more to the Ghôr. Just on the brow of this declivity is the village, and also many remains of the ancient city. But the Tell or acropolis is 10 minutes further N., near the stream of Jalûd coming from the W., which passes down at the N. foot of the Tell. On the S. of the Tell are numerous columns still standing, and the very perfect remains of a large amphitheatre. All the ruins (except the columns) are of black basaltic stones, and the Tell is also of the same character, and black.

On Monday morning we left the direct road to Zer'în on our right, and struck off to the foot of the mountains of Gilboa, to a site of ruins called Beit Ilfa, which had been already visited by Schultz. The remains are those of a small place: there are two or three ancient sarcophagi. It could never have been a fortress of importance, since it lies in the plain directly at the foot of the high mountain. Whether it was the *Bethulia* of the book of Judith is at least doubtful.

We now passed on across the plain to Kŭmieh, and were near getting our animals mired in the soft bottom of the Ialûd. At Tŭmrah we crossed the line of hills extending from the Little Hermon eastward to Kaukab, and descended so as to pass along the eastern foot of Tabor to the Khân and Lûbieh. Here we encamped.

From Lûbieh we came next morning to the Hajar en-Nŭsrany, where our Lord is said (in monkish tradition) to have fed the 4000. My object at this place was to obtain the view of Capernaum described by Arculfus, as this seemed naturally to be the point of which he speaks. Thence we descended to Irbid at the upper end of Wady Hamâm. The remains are not important; but among them are the columns and some other portions of an ancient Jewish synagogue, of the same type with those at Kefr Bir'im and Meirôn. We now passed down Wady Hamâm, beneath its frowning precipices with the caverns of the fortress Kŭl'at Ibn Ma'an, and entering our former route at the Round Fountain, followed it to Khân Minyeh. Here I was more impressed than formerly with the extent and character of the adjacent ancient

site; and the neighbouring fountain, 'Ain el-Tîn, is fine and cold.

On the promontory beyond is a deep channel cut in the rock, now serving as a road, but obviously once an aqueduct conveying water from Tâbighah to irrigate the plain. At Tâbighah the water was formerly raised to an elevated head in a massive reservoir; but there are no traces of the intermediate channel. At Tell Hûm we at once recognized in the sculptured remains, which formerly had puzzled us, another ancient Jewish structure, like those at Meirôn and Kefr Bir'im, and the largest and most elaborate of all.

At Tell Hûm we turned up from the lake along a shallow Wady coming down from the N.W., in order to visit a site of ruins called Kerâzeh. An hour brought us to the place. The remains are merely the basaltic foundations and walls of a poor village. In a side valley, 5 minutes N.E., is a small fountain called Bîr Kerâzeh. This name may be compared with the ancient *Chorazin;* but the latter place, according to Jerome, appears to have been situated on the shore of the lake (*in litore maris sita*), and the remains seem too unimportant.

We now struck up into the road running N. from the Khân Jubb Yûsuf along the eastern foot of the Safed hills to the Hûleh. After a long hour, we turned up for the night to Jaûneh, a village lying high on the declivity of the western hills and overlooking the Hûleh; but still at some distance S. of the lake.

Our road next day continued along this declivity, passing through or near several villages and places of ruins. Among the latter was Kŭsyûn, of which we had before heard. Coming at length to the deep Wady Hendaj, we were obliged to descend to the plain and cross its mouth. But we soon again began to ascend on the road to Kedes, and coming out upon the plateau on which Kedes lies, we turned off S.W. to visit el-Khureibeh, a Tell with ruins S. of Kedes, and overlooking the gorge of Wady Hendaj from the N. I have formerly suggested, that possibly this spot may have been the Hazor of Scripture, which is twice mentioned as on the S. of Kedesh, nor have I since found any more probable site.

We passed on to Kedes over the fine plain, in which, below the village, are some remarkable sarcophagi, and two ruined structures. The easternmost of these is of the Jewish type already mentioned. The situation of Kedes is splendid; but the water of its copious fountains is regarded as unhealthy, and the place was now deserted. We encamped for the night at the large village of Meis.

The next morning brought us to Hûnin, the road affording on the way extensive views, as far as to Tibnin on our left, and over

the lake and plain of the Hûleh on our right. Hûnîn is evidently an ancient site; but there are no data by which to ascertain its ancient name. It lies in a notch of the ridge, looking towards the E., while towards the W. a valley runs down from it to the Lîtâny. Our way now continued N. along the high ground, leaving 'Abil and Mutŭllah on our right, and Kefr Kily on our left, until we descended into the fine oval basin of Merj 'Ayûn. Crossing this, we came to Tell Dibbîn in its northern part, so called from a neighbouring village. There are remains of an ancient town at its northern base; and there seem to be good reasons for regarding it as the site of ancient *Ijon*. The Tell is 90 feet high.

We here fell into the road from Sidon by the Jisr Khŭrdelah to Hasbeiya, and continued on over a high plain till it descended into Wady el-Teim at the Khân. Here this valley opens out to a very fertile oval basin, full of tillage and fruit trees. Three quarters of an hour from the Khân brought us to the ford of the Hasbâny, leading to Hasbeiya. The bridge lies 10 minutes higher up, and the great fountain some 30 rods above the bridge. The river was running with a fine full stream, coming wholly from the fountain. We passed up the rough and rocky Wady Busîs, and came in 35 minutes to Hasbeiya, situated in the S.W. quarter of the great amphitheatre, which forms the head of that valley. This was on Thursday, May 20th.

Here the Rev. W. M. Thomson, from Sidon, was awaiting us, and Dr. Smith left me and returned to Beirût. But the exhaustion caused by rapid travelling during the excessive heat had brought on an illness, which detained me at Hasbeiya until the next Tuesday.

On that day (May 25th) Mr. Thomson and myself set off for Bâniâs by way of the chasm of the Lîtâny below Bŭrghŭz. There had been reports of robberies committed by Druzes in the vicinity of Bâniâs, and we took the precaution to obtain a letter from the principal Druze Sheikh in Hasbeiya, who also sent with us three of his men. But we heard nothing more of robbers, though there was no question but that the reports were true.

We struck first by Kaukaba over to the bridge of Bŭrghŭz. Below this bridge the river meets a ridge or spur running out from Lebanon, and cleaves it obliquely and almost lengthwise to its base. We kept along without path, as near as we could on the top of the thin left-hand ridge above the chasm, to Belât. The depth below us as we rode along was from 1000 to 1200 feet. At Belât Mr. Thomson had a few days before found the height of the precipitous bank alone to be 800 feet by the aneroid. The whole chasm bears a great resemblance to that of the river Salzach at the Pass Lueg, on the way from Salzburg to Gastein. At Belât the chasm turns S.W. at a right angle, and becomes still

more precipitous. After cutting thus through the ridge the river again turns S. and flows on by Kŭl'at esh-Shŭkîf.

We now kept along by way of Dibbîn and Judeideh, visited again Tell Dibbîn, and then ascended the eastern hill to Khiyam, the chief place of Merj 'Ayûn, where we encamped. It commands a view both of the Merj on the W., and of Wady et-Teim and the upper portion of the Hûleh on the E. Here, as in all the region round about, the traveller has continually before him the lofty ridges and snowy summits of Jebel esh-Sheikh, the Hermon of Scripture. There are two summits, of which the north-eastern one is the highest.

From Khiyam our course was to Tell el-Kâdy, fording the Hasbâny in its deep channel just N. of Ghŭjar on its E. bank. The bridge of that name is some distance farther down the river. Tell el-Kâdy is apparently the crater of an extinct volcano; portions of the rim are still visible. From under its S.W. side gushes out at once an immense stream of the purest water, while another smaller one rises within the crater, and rushes down further S. through a break in the rim. These streams together form the middle and largest arm of the Jordan, called Leddân, equal, indeed, in the volume of its water to both the other branches.

From this point we made an excursion into the lower Hûleh, in order to ascertain whether there was any junction of the streams before entering the lake. We expected to traverse much marshy ground, and were surprised to find only a most beautiful tract of plain, superabundantly watered indeed by channels from the various streams of the Jordan, but not now miry, and the whole of exuberant fertility, like the Ghôr around Beisân. But the Hûleh exhibits far more tillage. We came first upon the stream from Bâniâs, and forded it twice in its windings, then to its junction with the Leddân, which came down in two arms, and lastly, further down, came in the Hasbâny. From this point, which is some distance above the lake, the river runs to the latter as one stream. We returned, and pitched our tent at Bâniâs.

Bâniâs lies in the angle of the mountains, on a beautiful terrace, 500 feet higher than Tell el-Kâdy. The brow of the terrace is nearly 20 minutes W. of the town, and extends as far as to the great chasm of the Wady 'Asal, coming down from Jebel esh-Sheikh. E. of the town runs up a high and thin ridge, which seems cut off from the shoulder of Jebel esh-Sheikh by the deep and wild gorge of Wady Khushâbeh, which comes out upon the terrace around the W. end of the said ridge. Just here, from under the lower extremity of this ridge, and in no direct connection with Hermon, bursts forth the famous fountain, of the purest and most sparkling water, and sending forth a stream two-thirds as large as the Leddân. On a high point of the same ascending

ridge stands the ruined castle of Bâniâs, the Kŭl'at es-Subeibeh of Arabian writers. On the S. side of the town comes down Wady Za'arah with a brook, which unites below with the stream from the fountain.

The following day was devoted to an excursion to the lake *Phiala*, now Birket er-Râm, returning by way of the castle. At first we passed up along Wady Za'arah, then in a direct course by 'Ain Kŭnyeh over the high ridge above that village, whence we again descended and crossed Wady Za'arah, here coming from the N.E., and sweeping round in a circuit through the ridge till it turns N.W. The lake is a short distance beyond, just 2 hours from Bâniâs, in a direction nearly E. by S. It lies in a depression like a bowl, 200 or 250 feet lower than the adjacent tract, and is not less than a mile in diameter. It was probably once a crater; the shores are everywhere volcanic. Millions of frogs and innumerable leeches are the tenants of its stagnant, slimy waters. Some ducks were swimming on its surface, and a hawk was pursuing them.

We struck off now N.N.W., without path, to gain the top of the ridge before-mentioned, crossing on our way the lower end of Merj Sheikh Yafûry, a little plain coming down S.W. from under the very base of Jebel esh-Sheikh, which here drops down at once precipitously from its south-western summit to this plain, 3500 to 4000 feet. The plain forms the head of Wady Za'arah. Having gained the top of the ridge, we descended and passed along a lower neck or cross-ridge, extending from it to that on which the castle stands. On this, 25 minutes E.S.E. of the castle, we came to a grove of venerable oaks, among which is the tomb of Sheikh Othman Hazûry. This spot has also been assumed as the site of the ancient Hazor, but the ground is in its native state, and was obviously never built upon. This was the third Hazûr, or Hazûry, which I had visited, neither of which can possibly have been the Hazor of Scripture.

The castle is the most extensive and best-preserved ancient fortress in all Palestine. It is very long, though narrow, and the eastern and highest part forms of itself a separate citadel, with walls and towers more massive and impregnable than the rest. It was originally wholly built of stones finely bevelled, and in the eastern portion especially there has been little change. The patch-work of the times of the Crusades is visible in many parts, but other portions of earlier ruin remain untouched. A very steep and rapid descent from the castle, down the S. side of the ridge and along its base, took us to Bâniâs in 50 minutes.

We returned next day (May 28th) to Hasbeiya. The road keeps along the southern base of esh-Sheikh to the mouth or plain of Wady el-Teim, and then turns N. by E. In a little more than

half-an-hour from this point we turned off and climbed for 40 minutes the almost precipitous mountain on our right to a place of ruins called Kul'at Bustra. This is a singular spot; it was not a fortress nor a town, but rather a religious site, a collection of temples. These were small indeed and rude, but we made out not less than four distinctly, and there must probably have been more.

Our road lay by Rasheiyat el-Fŭkhâr, renowned for its pottery, and thence to Hibbarîyeh, situated at the mouth of the great chasm of Wady Shib'ah, where it issues from the W. side of Jebel esh-Sheikh. In this enormous gorge, high up in Hermon, lies the village of Shib'ah, which sends out its 25,000 goats to pasture throughout the higher parts of the mountain. In Hibbariyeh, and fronting this magnificent chasm, stands a beautiful and well-preserved ancient temple, built of large bevelled stones, some of them fifteen feet long. It is of the same general type with that at Deir el-Kŭl'ah, but less massive and less simple.

We came by 'Ain Jŭrfa to Hasbeiya, crossing the high ridge on the S. of the town. From the bed of Wady Shib'ah, below 'Ain Jŭrfa, we ascended 992 feet to the top of this ridge, and then descended 550 feet to Hasbeiya. These measurements had been made by Dr. De Forest with the aneroid a few days previously.

On the following Monday (May 31st) we started again on the way to Damascus, accompanied by Mr. John Wortabet. We crossed the bed of the Hasbâny, above the fountain, where only a small thread of water was trickling among the stones, and ascended the ridge ed-Dahar, which divides Wady el-Teim from the valley of the Lîtâny. Along the top of this ridge runs a road, which we took for an hour north-easterly and then left it, and descended obliquely to Yŭhmur on the E. bank of the Lîtâny. Half an hour up the river from this village is the Kûweh, a natural bridge over the Lîtâny, at the bottom of a wild chasm. The road to it is now not more difficult than many others, and leads from it up to Jezzin. The bridge appears to have been formed by the fall of rocks from above, and has some resemblance to the *Oefen*, at the Pass Lueg. From the Kûweh, we turned again obliquely to the ridge ed-Dahar, and came to Libbeiya, on its eastern brow, and passed on to Neby Sŭfa for the night. Here is another temple, not unlike that at Hibbariyeh, but less well preserved.

We came next day to Râsheiya, situated high on the north flank of Jebel esh-Sheikh, and strictly upon the first or western ridge of Anti-Lebanon. Hence, we followed the great Damascus road for half an hour to 'Aiha, where also are the now scattered remains of an ancient temple. Hence we struck down across the fine round basin of Kefr Kŭk to that village. This plain has no outlet, and becomes a lake in the rainy season. We then took another

cross-road, in order to reach Rŭkhleh, situated E. of the watershed, on the road which passes by 'Aiha. Here, in the deepest recesses of Hermon, is (or rather was) one of the finest ancient temples—massive, and yet simple and beautiful, with nothing of the later more florid style. The ground is strewed with its ruins.

We now turned about N.N.E., and came in an hour and three quarters to Deir el-'Ashâyir, situated on the upper plateau of Anti-Lebanon, S. of Zebedâny. Here too is an ancient temple, more elaborate and ornate than that at Rŭkhleh, and standing on a platform. Here we stopped for the night.

The next morning Mr. Thomson left us to return to Hasbeiya and Sidon. Our road led along a shallow valley, through an open region to the fountain and ruined Khân of Meithelûn, where a road from Beirût comes in, which passes through Wady el-Kŭrn. We came to Dîmâs, and followed the usual road by Mezzeh to Damascus. It is barren and dreary enough. The only point of interest on it is the view from the brow above Mezzeh; and this is far inferior to the celebrated one from the Wely, above Salihîyeh.

In Damascus, it had been arranged by the missionaries that I should find a home in the dwelling of Mr. Robson, of the Irish Presbyterian Church, and that he would accompany me on my further journey. From him and his colleague, Mr. Porter, I received the kindest attentions. The American missionaries were mostly absent at Blûdâu, near Zebedâny, preparing a summer residence; but Dr. Paulding returned before I left. To him and Mr. Porter I am also indebted for much topographical information.

Damascus is an oriental city; but it is one of the most regular and least filthy of oriental cities. It has many more remains of antiquity than I had supposed, though few of them go back beyond the Roman period. It is likewise a very old city, being mentioned in the time of Abraham, and being, too, the only known city of that period which is now inhabited and flourishing. The glory of Damascus is its splendid plain, watered abundantly by the channels of the Berada. Without the waters of this stream, the plain would be a desert; with them it is an earthly paradise, luxuriating with fields of the heaviest grain, and trees of the finest fruit.

We heard here (though not for the first time) of a valley descending from Anti-Lebanon, N. of the Berada, and parallel to it, which takes the name of a village situated in the upper part of it, called Helbôn. This valley is celebrated for its fine grapes and vineyards; and from them is made the best and most famous wine of the country. Our friends had repeatedly visited the place. They are probably right in regarding this as the *Helbon* of Scripture, rather than Aleppo (Haleb). The "wine of Helbon" is still celebrated; while Aleppo, if it produces wine at all, has none of any special reputation.

On the Monday following (June 7th), Mr. Robson and myself left Damascus for Ba'albek, by the circuitous route of 'Anjar. We ascended the ridge back of Salihîyeh, and enjoyed, from the Wely at the top, the glorious prospect of the city and plain, so justly celebrated; and also looked down into the remarkable gorge by which the river here breaks through the last ridge of Anti-Lebanon. At Dummar, the direct road to Zebedâny leads over the bridge, and strikes across the great northern bend in the river. We, however, without crossing the bridge, took a road more to the right, which led us away from the river, until we turned and reached it again at Bessîma; whence we followed its left bank up to the great fountain of el-Fîjeh. The stream from this fountain is about the size of that at Bâniâs; it foams and tumbles down a rocky channel for about 120 yards, and joins the Berada. Here it is larger than the latter; its water is limpid, while that of the Berada is turbid. At the fountain are the remains of two ancient temples, one of them quite small.

We came afterwards to el-Kefr, also on the N. side of the stream, where, near by, are the ruins of a small temple, apparently Greek, the capitals of the columns being Corinthian.

Here we crossed to the S. bank of the stream, and came soon to the village of Sûk el-Berada, near the mouth of the long gorge through which the river flows from above, and directly under the high cliff (800 feet) on which stands the Wely of Neby Abil. In the lower part of this gorge, and extending probably down to this village, was the site of the ancient *Abila*. It is marked by columns and other remains, while above are many tombs hewn in the rocks, and the ancient excavated Roman road with the inscriptions. Here the road again crosses for the last time to the left bank of the stream. Just beyond the chasm, a smaller stream comes in from the S.W. from Wady el-Kûrn, which drains the plain of Judeideh, lying beyond a ridge in the S.W. from Zebedâny. Turning more to the right, the road soon enters the beautiful plain of Zebedâny, so called from the large village in its northern part The great fountain of the Berada is in the S.W. corner of the broader portion of the plain, and the stream meanders through the narrower portion below. We pitched our tent here upon its green bank, not far from a mill and bridge. The plain is shut in by a steep ridge on the W., and by another on the E, which, opposite Zebedâny, rises into the highest peaks of Anti-Lebanon. On its declivity is the village of Blûdâu.

The next morning we made a circuit northwards to reach the great fountain. It forms a small narrow lake, out of which the stream runs, first eastwards and then turns southwards through the narrow part of the plain. Thence we passed on S.S.W., along the base of the western ridge to Batrûny and its basin, at the extremity of which the road ascends in an angle formed by a spur. We came

out on the top of the high western ridge, and looked down into the plain or basin of Judeideh below. The view extended also over and beyond the lower ridge, still further W., and took in the snow-capped summits of Lebanon. As we looked down, we could see the outlet of the basin, the beginning of Wady el-Kŭrn, at some distance on our left.

Descending into the plain, we found it a perfect desert. Not a drop of water, not a spot of verdure, not a tree, not a human dwelling was anywhere to be seen. How different from the green plain of Zebedâny, which we had just left! We crossed the basin obliquely, and on its western side, at the mouth of Wady Zarîry, fell into the usual road from Damascus to Beirût. A short and gentle acclivity brought us to the watershed, whence we descended very gradually by the much longer and somewhat winding Wady Harîry to the Bŭkâ'a, opposite the village of Mejdel 'Anjar.

Here terminates a range of elevated hills, which, running from the S. along the eastern side of the Bŭkâ'a, parallel with Anti-Lebanon, encloses between the two a narrow and somewhat higher valley. This may be considered strictly as a continuation of Wady el-Teim; the hills on the W. of that valley running on and terminating here. Further S., and opposite to the village of Sultân Ya'kob, there is a depression or basin in this higher valley, which is drained, through a gap in the western hills, into the Bŭkâ'a. This gap is known as Wady Fâlûj.

Mejdel is remarkable for one of the finest antique temples now existing. It stands on the summit of the northernmost hill, looking northwards along the magnificent vista of the Bŭkâ'a, having the lofty wall of Anti-Lebanon on the right, and the still loftier snow-capped ridges of Lebanon on the left. The temple is simple, massive, and beautiful, and obviously of a severer and earlier type than those at Ba'albek. Nothing can be finer than its position.

Forty minutes N.E. of Mejdel lie the ruins now called 'Anjar; they are in the plain, which slopes gently to the N. towards the stream from the great fountain of 'Anjar. Here are the ruined walls and towers of an ancient fortified city or citadel, in the form of a square, about a quarter of an English mile on each side. An examination of the place left no doubt on my mind that, as I have formerly suggested, this was the site of *Chalcis*, in Lebanon, the seat of Agrippa's kingdom, before he was transferred to more southern territories. We encamped at the great fountain, 15 minutes distant, at the foot of Anti-Lebanon.

Further N. another line of hills begins, parallel to Anti-Lebanon, and near it, which runs on with little interruption quite to Ba'albek. They seem almost a continuation of the hills further S., as if the latter only terminated here for a time, in order that the low meadow-like tract from the Bŭkâ'a might set up between, and receive the waters of the two great fountains, 'Anjar and Shemsîn.

Neba' Shemsîn is 20 minutes N. of Neba' 'Anjar, and is much less copious. Beyond it, our road lay next day (June 9th) between the line of hills and Anti-Lebanon; the slope of the narrow valley at first ascending and then descending for a time, with occasional intervals between the hills, affording fine views of the great plain in the W. After 3 hours, we saw at Deir el-Ghŭzâl the massive substructions and scattered ruins of another temple. An hour further was the stream of Wady Yahfûfeh, coming down from Serghâya, and here breaking through the last low ridge of Anti-Lebanon by a deep chasm to the Bŭkâ'a. Not far N. of the chasm this low ridge of Anti-Lebanon has its end in a promontory, which we crossed to reach the village of Neby Shît. Still further N., the high ridge which we had seen on the E. of Zebedâny comes out, and forms the eastern wall of the great valley. N. of Neby Shît, the space E. of the line of hills becomes rather a high plain, through which several ravines from the mountain break down to the great plain below. Around the last of the hills, the great plain sends up an arm to the fountain of Ba'albek; and the city itself, with its gorgeous temples, is situated at the N.W. base of the same northernmost hill. The quarry, in which the immense block lies hewn out, is scarcely 10 minutes S.

This is not the place to speak of Ba'albek. Its temples have been the wonder of past centuries, and will continue to be the wonder of future generations. In vastness of plan, combined with elaborateness of execution, they seem to surpass all others in Western Asia and the adjacent regions. Such massive grandeur, and at the same time such airy lightness, seem nowhere else to exist together—certainly not in Egypt. Yet the very elaborate and highly ornate character of the structures appears to militate against the idea of any remote antiquity. The simplicity and severity which reign in the temple at Mejdel are here no longer seen.

N. of Ba'albek the Bŭkhâ'a becomes gradually narrower as far as to Râs Ba'albek, and its character changes. The fertile portion becomes contracted to a narrow strip near the western mountain; while from the eastern side an immense slope of hard gravelly soil extends down more than half across the valley, broken occasionally by ravines from the mountain and small offsets from the lower plain. This gravelly tract is everywhere little more than a desert, and this character became more and more marked as we advanced northwards, almost to Ribleh.

We started next day much later than usual, and came in less than an hour and a half to Nahleh, where is a temple, older apparently than those at Ba'albek. The way was dreary, and we stopped for the night at the great fountain of Lebweh. An hour previously we had passed the watershed in the Bŭkâ'a, on a ridge where we found the waters of a brook carried along so as to run

off in both directions, N. and S., and where, too, we obtained our first extensive view northwards. The fountain of Lebweh is as large apparently as that of 'Anjar. It rises out of a tract of gravel at the foot of a ledge of limestone rocks, and several streams are carried off from it in various directions. One of them is conducted along the hard and barren slope northwards for a great distance. The main bed of the stream runs off N.W., and keeps along not far from the western mountain. Farther north the desert slope extends quite across the whole valley; and the stream finds its way through it by a deep and narrow chasm. At least, this is its character in the neighbourhood of the fountains of the Orontes.

We passed next morning for some time along the canal from the Lebweh, and then turned more to the right, between still another line of hills and Anti-Lebanon. Ras Ba'albek lies near the northern extremity of these hills. In it are the remains of two ancient churches, showing it to have been once a place of importance, under a name now probably lost. Here the eastern mountain begins to retire, and sweeps round in a curve on the E. of Ribleh and the plain.

From this place we took a course about N. by W., and crossed the Bŭkâ'a obliquely to the fountains of the Orontes, and the monument of Hŭrmul. From the moment we left the gardens of er-Râs until we reached the said fountains every step of the way was a rocky desert. We crossed the canal from the Lebweh, here as large as at first, and driving three mills; but the soil was too hard and stony to be affected by the water, and not a trace of verdure clothed even its banks. It runs on to the vicinity of el-Kâ'a. We followed the road to Hŭrmul, and after 2 hours turned more to the left, without a path, for half an hour, and so came to the chasm of the Lebweh and the fountains of the Orontes.

These burst forth within the chasm from under its eastern wall. The Lebweh is here no mean stream. It seemed to us larger than at its source, and may receive accessions from fountains in its course under Lebanon. But here the size of the stream becomes at least three-fold greater. From the largest fountain it sweeps round a high rocky point. In the precipice on the other side of this high point, on the S. side of the stream, and looking northwards, is the excavated convent of Mâr Marôu, now deserted. The river continues in its rugged chasm northwards for a considerable distance, then sweeps round eastwards into the lower plain, and passes near Ribleh.

We took a direct course, without a path, to the monument, an hour distant. It is a remarkable structure, square and solid, terminating above in a pyramid, the whole being from 60 to 70 feet high. On the four sides hunting scenes are sculptured in relief, of which the drawing borders on the grotesque. They are too

much defaced to be fully made out. We looked for some inscriptions, but not a trace of any exists. The monument stands here on a lone projecting hill, far out in front of the western mountain; but its founder, and the event it was intended to commemorate, are alike unknown. From the monument, we struck a direct course, without any road, and through a region of trap. for Ribleh, which we reached after dark. It is a poor village, on the S. bank of the Orontes, here running E.

From Ribleh we would gladly have extended our journey northwards to Hums, Hamah, and even to Antioch. But the season of heat was already at hand, and, under existing circumstances, it was advisable for me to leave Beirût by the steamer of June 22nd. Very reluctantly, therefore, on my part, we turned next day towards the coast by way of the great fortress el-Hŭsn, bearing from Ribleh about N. 30° W.

Having crossed the great plain of the Orontes, we ascended very gradually the low, broad slope here running down northwards from the end of Lebanon. Further N., about opposite the lake of Hums, the ground is much lower. We struck at length the right bank of Wady Khâlid, a deep ravine coming down on our left from the S.W., with a stream, the remotest source of Nahr el-Kebîr. Following down this valley, it brought us to the south-eastern part of the beautiful oval basin, called el-Bŭkei'a, 3 hours or more in length from N.E. to S.W., and an hour and a half in breadth. It is skirted on the S.E. by the last low points of Lebanon and the west side of the great slope we had crossed, and on its N.W. side by a ridge running S.W. from the Ansarîyeh mountains. At its S.W. end, this ridge sinks to low hills; and here the river el-Kebîr breaks through into the western plain. In the northern part of this ridge there is a gap formed by two Wadies running out, one on each side, with a low watershed between, affording a very convenient and easy passage for a road. Here is still the road from Hamah to Tripoly and the S.; and it must always have been a pass of much importance. Above it, on the S. side, stands the fortress el-Hŭsn, completely commanding it. The castle has no very definite mark of high antiquity, yet we can hardly doubt that so important a position was very early occupied. From the castle there is a view of the waters on both sides—the lake of Hums on the E. and the Mediterranean on the W.

A little more than half an hour down the western valley stands the great Greek convent of Mâr Jirjis (St. George), where we stopped for a few minutes, and were very courteously received. Twenty minutes further westward down the valley is the great intermitting fountain. This is unquestionably the Sabbatical river described by Josephus, which Titus saw on his march from Arka

to Raphanæa towards Hamath. The Roman general naturally led his army through this pass. According to Josephus, the fountain ceased to flow on the Jewish Sabbath; the present popular belief of Muslims regards it as resting on the Muslim Sabbath, or Friday. It was first identified by Mr. Thomson.

Our wish had been to proceed from el-Hŭsu to Ehden and the cedars of Lebanon, by some direct route leading up through the northern parts of the mountain. But we were not able to find that any such road exists, on account of the sharp ridges and deep chasms which intervene. Even to reach 'Akkâr, it was necessary to make a circuit to the Jisr el-Aswad, far in the S.W. As our time was limited, we felt constrained to give up even this route. Nothing therefore was left for us but to proceed for a time on the way to Tripoly, and then strike across to the usual road from the latter place to the cedars. This we did, visiting on the way the site of Arka, and passing E. of Jebel Turbul to Zŭgharta, situated on the said road an hour and a half from Tripoly.

This road follows up at first the Ju'ait, the middle branch of the Kadîsha, then leads up a steep ascent to the first plateau of the mountain, and afterwards up another still steeper, along the wild and difficult Wady Harûny, to the second plateau, on which is Ehden: this extends to the base of the high unbroken ridge, the backbone of Lebanon. We encamped for the night by a solitary fountain in Wady Harûny, a little off the road, and enjoyed the cooler and delicious climate, which we had already reached.

Ehden has a fine situation, and the tract around it was well tilled. The harvest in the plains below was over; here it would not begin for two or three weeks. The *silk*-harvest was equally behind that of the plains. In these high parts of the mountain the potato is cultivated; we saw several fields of this plant arranged and irrigated like gardens.

The cedars are not less remarkable for their position, than for their size and beauty. They are situated at the head of a vast amphitheatre looking W., surrounded by the loftiest ridges of Lebanon, which rise from 2000 to 3000 feet above them, partly covered with snow. From this amphitheatre issues the great chasm of Bsherreh, perhaps the wildest and grandest of all the gorges of Lebanon. In the midst of this vast temple of nature the cedars stand as the lonely tenants, with not a tree nor scarcely a green thing besides. We passed on, and encamped at Hasrûn, on the southern brink of the great chasm of Bsherreh.

Our road next day (June 17th) kept along as nearly as possible to the base of the high ridge, crossing the heads of deep valleys, and also the ridges and spurs which lay between. We came at last to the highest spur of all, where our road led over snow, and then descended at once into the great basin of 'Akûra, where are

the sources of the Nahr Ibrahîm, the Adonis of the ancients. We came for the night to Afka, situated in the S.E. branch of the basin, in an amphitheatre resembling that of the cedars; not so vast indeed, but verdant and beautiful. Here a fine fountain bursts forth in cascades from a cavern, and directly in front of these are the shapeless ruins of a large temple. This was the temple of Venus at *Apheca*. In it were two massive columns of Syenite granite; but how they could ever have been brought to this high part of the mountain is a mystery.

Our route next day was similar, keeping along as high as possible, and crossing a very steep and high ridge into the basin in which are the fountains of the Nahr es-Sŭlîb, the northern branch of the Nahr el-Kelb. There are two of these fountains, Neba' el-Asal and Neba' el-Leben, both of them large, and sending forth copious streams from under the foot of a ridge close under Jebel Sŭnnîn. The stream from the latter fountain very soon enters a deep chasm in the table land, the sides of which have almost an architectural regularity. Over this chasm is a natural bridge, having on the S. side a perfect arch of more than 150 feet span, and 70 or 80 feet above the stream. The width of the bridge on the top at the narrowest point is 120 feet. Our road lay across this bridge, and a traveller might easily pass this way without becoming aware of this wonder of nature.

We passed on to the ruins of Fukra, situated in another valley which runs to the southern branch of Nahr el-Kelb. Here are the remains of another temple, and also a square tower apparently intended for a military purpose. The road now led in a very direct course towards the mouth of Nahr el-Kelb. W. of the long straggling village Mizra'ah, we descended into and crossed the very deep chasm of the northern branch es-Sŭlîb, resembling greatly the gorge of the Lîtâny above Belât. Beyond this chasm, we pitched our tent for the last time in the western part of 'Ajeltûn.

The next morning (June 19th) we continued to descend gradually, till coming out on the high northern bank of the valley of el-Kelb, we found a very steep and difficult pass, which brought us down to the stream, 5 minutes above the bridge. We reached Beirût soon after noon. On the 22nd of June, I embarked to proceed by way of Smyrna to Trieste.

Such is an outline of the second journey which I have been permitted to make in the Holy Land. I desire it to be distinctly understood, that the one great object of all these investigations has been *the historical topography* of that country, in its relations especially to the Holy Scriptures, and less directly to the writings of Josephus: to this one object, all our other observations have been only subsidiary.

II.—*Notes on a Journey into the Balkan, or Mount Hæmus, in* 1847. By Lieut.-General A. Jochmus.

Communicated by Sir Roderick I. Murchison.

Read November 28, 1853.

Equipped for light travelling, on account of the known difficulty of procuring a sufficient number of baggage animals on several points of our projected tour into the Balkan (Hæmus), we left Constantinople on the 28th September, *en route* for Kirk-kelesia and Aïdos.

For myself, for my orderly Soliman, a *sabtieh* or police-soldier, a *suruji* or post-guide, and for the baggage, five horses were required from the general post-office at Constantinople.

The horses at this establishment are notoriously bad. In most parts of the empire the rate of travelling post on the principal lines of communication is 6 or 7 miles an hour, stoppages included. With the Constantinople post-horses it is generally impossible to travel faster than 3 miles an hour.

With these wretched animals we only reached the first day's station after 9 hours' march, although Chatalcha is computed to be scarcely 8 hours distant from Constantinople.

Constantinople to Chatalcha.

Distances:—

Constantinople to	Buyukderbend	3 hours.
,,	Chelenkir-Koi	4 ,,
,,	Natash	6 ,,
,,	Chatalcha	8 ,,

Leaving the suburbs of Khas-Koi, with the fine Jewish burial-ground on our left, and the Barbyses near the Sultan's summer kiosk at the European Sweet Waters, we took the road of Jebeji-Koi to Buyukderbend, in order to see the aqueduct a little S. of that village,* about half an hour N.N.W. from the Khan, at the western outlet of a long and strong defile of the Ali-Bey-Koi-Sou (or Kidaris).

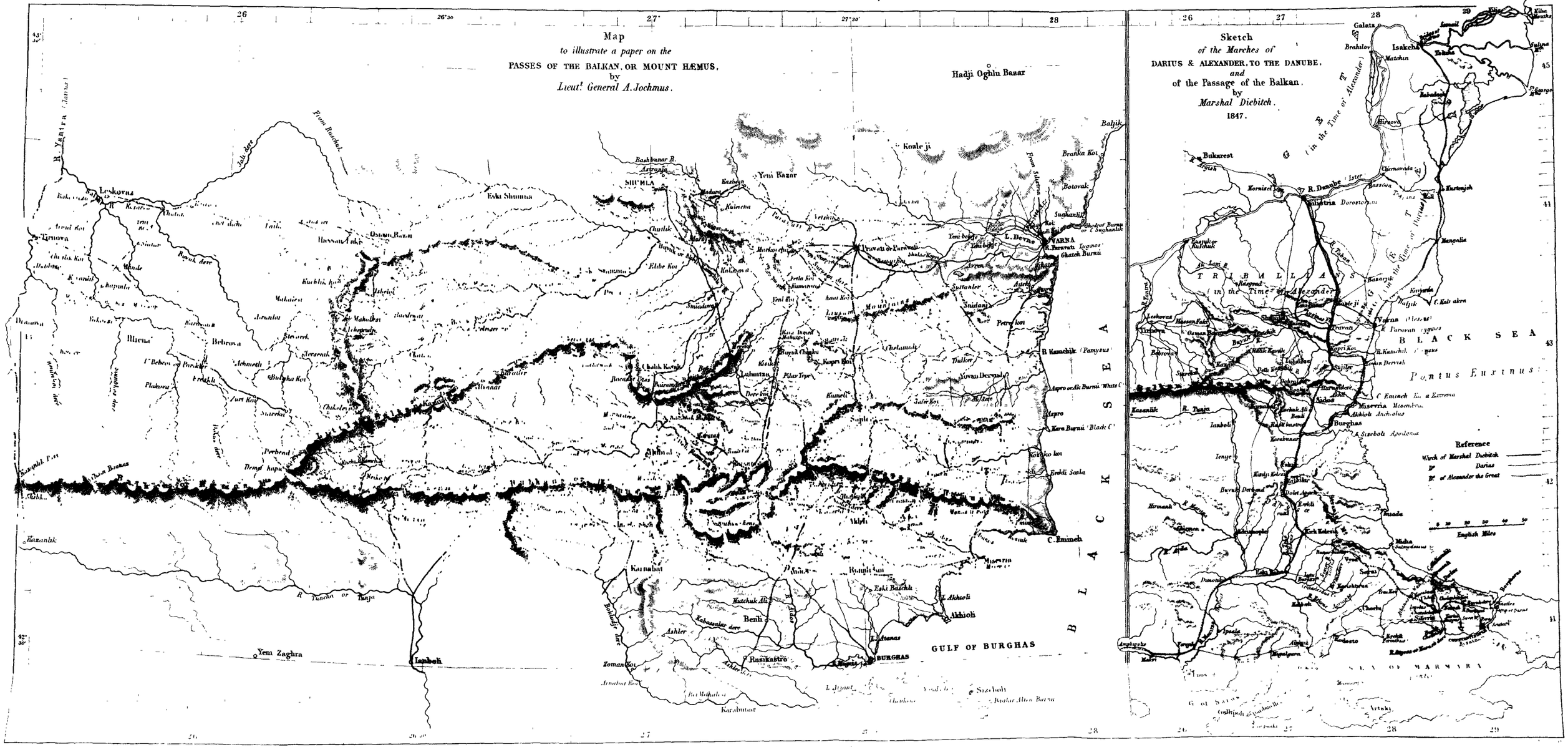
The hill above the Khan is crowned by an abandoned redoubt, either thrown up in 1829, when Marshal Diebitch was advancing from Adrianople on Stamboul, or built perhaps in 1811, when swarms of Cossacks are reported to have crossed the Balkan, and to have penetrated as far as Burghas, although in that campaign the great Russian army remained before Shumla.

The military position of Buyukderbend is strong in front and on its right flank; but it can be turned on its left by a force

* The Khan at Buyukderbend, a spacious building to the north of the high road, lies at the foot of a hill overlooking a road to Boghaz-Koi.

Map
to illustrate a paper on the
PASSES OF THE BALKAN, OR MOUNT HÆMUS,
by
Lieut.ᵗ General A. Jochmus.

Sketch
of the Marches of
DARIUS & ALEXANDER, TO THE DANUBE,
and
of the Passage of the Balkan,
by
Marshal Diebitch.
1847.



advancing from Chatalcha or Silevria, on the direct road to Daoud Pasha by Yarim-Burghas.

This latter road is of great importance; for an army, by following it, can also turn the formidable position of Buyuk-Chekmeji, 3 hours W. from Constantinople, on the Silevria post-road.

One hour beyond Buyukderbend (where Albanian *sabtiehs*, or police-soldiers, asked for our *teskerés*, or Turkish passports) is Chelenkir-Koi, a village of 30 houses, in a good military position, facing E. on undulating open ground. In its front a rivulet, marshy in the wet season. Two hours beyond Chelenkir-Koi is Natash, a large village of 120 hearths, inhabited by Turks and Rayahs.

Half way between Natash and Chatalcha is a Roman bridge, 15 or 16 feet wide, over a marshy ground formed by the Karasudéré. At the eastern head of the bridge are the remains of an ancient guard-house.

Chatalcha, on the Attyras (not Altyras, as on the great Austrian staff map), is a borough of comfortable appearance, with three mosques, 120 Turkish and 180 Christian houses.

Twenty minutes before entering the place, we passed on our left, on the road to Yarim-Burghas, a bridge, apparently Roman, over a rivulet falling into the Liman, or bight of Buyuk Chekmeji.

Our road from Constantinople to Jebeji-Koi, which, almost as far as Justinian's Aqueduct, lies in the partly cultivated valley of the Kidaris, runs from thence to Chatalcha over undulating ground and plains.

The staple produce of the scanty villages which we passed through or saw at a distance is corn, with some tobacco. Much poultry is also reared for the Constantinople market. We met numerous small caravans of carts, drawn by oxen or buffaloes, transporting provisions to the capital. It may serve as a general remark to state, that, contrary to European practice, the neighbourhood of large Turkish towns is generally worse cultivated than the more distant parts of the country, chiefly because property, within the immediate sphere of the principal fiscal authorities, is frequently exposed to insults and onerous exactions.

The immediate vicinity of the capital begins to make a partial exception; but the barren, woodless plains round Constantinople prove how slow progress is in this respect, even although property, generally speaking, is rising in value in and near the town, on account of the removal during recent years of population and capital from the provinces to Constantinople, where the direct or indirect action of foreign diplomacy is supposed to augment the security of life and property.

Chatalcha itself is situated in a well-watered, wooded, and

secluded valley, between the last eastern slopes of those projecting spurs of the Little Balkan which are called the Stranja mountains, where they branch out nearly due N. and S. into a ridge crowned by the remains of the Athanasian Wall, between Silevria and Cape Kaliundik.*

The remains of ancient fortifications indicate Chatalcha to have been a place of some importance, especially under the Byzantine empire, and to have been, during the Bulgarian wars, a garrison town of considerable strength.

In the modern town, the best and cleanest house belonged to the rayah-primate, or Shorbachi Manuel Anastasiadis, who happened or pretended to be absent when I sent to look at his house.

A policeman of the *kadi* or *muktar* opened the *konak* without further ceremony. My double quality of a traveller and a high Ottoman functionary was, in his eyes, a sufficient reason for totally disregarding the otherwise important fact that the owner was not present at this unexpected occupation of his house.

Manuel Anastasiadis made his appearance about half an hour after I had been installed in his best rooms. The cringing demeanour of the Greek was modified in him by the sturdiness of the Bulgarian race. He was of mixed blood; and his family had emigrated from Yene, near Bunarhissar, to Chatalcha in the time of Mustapha Baïrakdár's insurrection.

Deceived by his appearance, I asked him if he was an Armenian; but his answer, that he was "*a Christian*," proved to me that he was an orthodox Greek, who preferred a Mussulman to a heretic or Catholic, notwithstanding his complaints of Turkish misrule.

The great abuse, as stated by the Shorbachi, lies in the contradictory nature of the regulations of the Government. Sometimes the administrative and judicial questions at issue are settled according to the old system, and sometimes in conformity with the new principles of reform, but always as it best suits the interest of the judge or his Mussulman clients.

On the *29th Sept.*, notwithstanding the orders of the kadi, and the promises of my host, there was much quarrelling in the courtyard of the latter about the horses which were to take us to Seraï, distant 13½ hours. At last it was settled that, for a reasonable compensation, three Rayah horses and one Turkish baggage-mule should be furnished, and that the guide, or *suruji*, should be a Mussulman. The Rayah owners of the three horses protested violently against this apparently equitable arrangement, but the

* A somewhat extensive but decaying specimen of this turreted line of defence is still to be seen 3 hours W.S.W. from the village of Ormanli, near the lake of Derkos. *See* Gibbon and Hammer.

police very soon silenced them by the timely infliction of a few lashes with the *kurbach* or horsewhip.

From Chatalcha to Injekis (40 houses), is a ride of one hour, through fine mountain gorges, along the Attyras, and over good shooting-ground. The patches of forest and underwood, right and left, are inhabited by wild-boar, deer, stag, &c. A fox-skin of good quality is worth 12 piastres. The Turks also hawk quails and other birds.

At Injekis itself, but on the opposite bank of the river, are the extraordinary caverns mentioned by Hammer as a labyrinth not yet visited or described by European travellers. They consist of three superimposed rows of natural excavations in a calcareous rock, the perpendicular front being formed by 13 openings leading to former dwellings. The only access is by an outer staircase partly hewn in the rock, and leading merely to the lower row of caverns, whence a passage, closed by a gate, leads to an interior church, and to an ascent to the upper stories.

A ladder of wood or rope is, however, required to reach the outer staircase. When the ladder is withdrawn the whole place becomes inaccessible.

In barbarous ages they may have served as places of refuge from plunderers and banditti, and have probably been converted at a later period into dwellings for monks and anchorites.

Our guide said, that in modern times the different caverns had been closely examined by the inhabitants of Injekis, but that the hoped-for hidden treasures had not been discovered.

Ascending the course of the Attyras for a quarter of an hour, through a strong defile, we came to two more clusters of subterranean caverns similar to those just described, and equally situated on the southern* bank of the river. The lower ranges being of easier access, have served as stables, the mangers being cut in the rock.

From Injekis to Avren is 1½ hour.

The village, of 50 Mussulman and Rayah hearths, contains a beautifully-finished Roman fountain in hewn stone, and, beyond, a piece of ancient road, and to the S. are some remains in Roman bricks.

From Avren to Karakizli-Khan is again 1½ hour. Twenty minutes beyond Avren, we passed a Turkish fountain on Roman foundations, and a piece of ancient causeway over a brook.

The Khan itself is partly built with materials taken from the Athanasian Wall, traces of which run N. and S. a few hundred yards to the W. of the Khan.

The mendacious proprietor of this establishment, taking me for

* North?—ED.

a Turk, pretended to have no coffee to offer us for breakfast, but furnished us with it as soon as he found out his mistake, and ascertained that he was to be paid. But, even at this risk, it is preferable, in travelling, to speak Turkish, the language of the conqueror, than Greek, the despised idiom of the conquered race. The Turks give the Greeks the byname of *ṭaushan*, or "hare," indicative of their want of courage. A foreigner, asking for anything in Greek, is sure to be cheated, and to be treated with familiarity and insolence into the bargain. On the contrary, any person speaking a Sclavonic language is sure to be well attended to, as the Illyrians and Bulgarians consider themselves much above the Greeks.

At Karakizli-Khan the Chatalcha road joins the direct Constantinople road by Uklali, &c. The latter lies over more open ground than the former.

Sultan Murad I. took Chatalcha in 1371. At present, an army advancing from the W. on Constantinople would avoid and turn the defiles of Chatalcha, either by taking the road from Chorlu by Silevria, on Yarim-Burghas, or by choosing the line from Seraï on Karakizli-Khan, Uklali, &c., on Yarim-Burghas or Buyukderbend.

Four hours beyond Karakizli is another Khan on the Seraï road. The whole route lies over a barren country partially covered with underwood, especially the gently-undulating Stranja ridges between the road and the Black Sea.

This dreary tract, W. of the Athanasian Wall, offers neither dwellings nor villages; the only signs of life we met with were small caravans of buffalo and ox-carts, either encamped under shelter of the high brushwood, or proceeding to Constantinople: at a distance also smoke is occasionally perceived from isolated huts of charcoal-burners.

In the neighbourhood of the Khan, several of the tumuli which are scattered in many places over this part of European Turkey are to be seen some leagues distant to the S. Our guide describes them as tombs of the Moscovs or Russians—a rude reminiscence, most likely, of the ancient Scythian tumuli.

In several parts of Turkey, however, as for instance, on the road from Chorlu to Adrianople, there are tumuli of another kind, such as the Murad Tépé or the Baba Tépé, which indicate the old encampments of the Ottoman armies. They were more frequently called Sanjak Tépés, or Hills of the Standard, raised in a conspicuous position by command of the Sultans or Seraskers, in order that the Sanjak-sheriff, or the Prophet's standard, when taken into the field, may be displayed on the summit. Smaller tumuli were also often erected by the special care of the spahis of the imperial armies in order to indicate the line of

march.* At the Khan was encamped another caravan with provisions for Constantinople. These little convoys generally consist of Turks and Bulgarians together.

Most of the Turks are armed. They are a fine, strong race of men, having preserved the old costume and the turban of variegated and gay colours, contrasting advantageously with the low, brown fur-cap of the sturdy Bulgarian, and the mean, black Rayah handkerchief of the Greco-Byzantine race.

Generally speaking, the recent reform in dress ceases beyond the Athanasian Wall, 12 hours W. of Constantinople—if, indeed, it can be said to extend so far—and, with the exception of the soldiery, it finishes at a quarter of an hour E. of Constantinople, that is, at Scutari, on the Asiatic shore of the Bosphorus.

The mongrel costume of the Nizam can only be seen in its absurd ungracefulness at the capital, and there merely amongst the military and civil servants of the empire.†

From the Khan to Yeni-Koi (40 Bulgarian straw-thatched houses) the distance is 1½ hour, and thence to Serai 4 hours more, the country being still barren, and partly covered with underwood. A few *Vallonia*-oaks are seen between Yeni-Koi and Seraï, where we arrived at nightfall; it contains 250 Turkish and Christian houses. We found the roads leading to this village strewed right and left with the carcasses of cattle which have died from a contagious disease prevalent here for the last two years. The carcasses, instead of being buried, are left to rot on the high road, and the skeletons remain in double rows at the principal entrances of the place, as a supposed protection against the tax-gatherer, or as a means of appeal to his commiseration.

Recapitulation of Distances.

From Chatalcha to Injekis	. . . . .	1 hour.
,, Avren	. . . . .	2½ ,,
,, Karakizli-Khan	. . .	4 ,,
,, New Khan	. . . . .	8 ,,
,, Yeni-Koi	. . . . .	9½ ,,
,, Serai	. . . . .	13½ ,,

Sept. 30.—Horses being difficult to procure late at night in the village of Seraï, our *suruji* from Chatalcha took us on to Vysa, 4 hours further, promising to pay the additional hire of our three Rayah horses to the respective owners—a doubtful case, which explains the energetic but unsuccessful opposition of those proprietors to the project of confiding their horses to the care of their friend Hassan, whose obliging, but not disinterested, disposition towards travellers must have been known to them from experience.

* *Vide* "Ussi Zafer," by Mohamed Essaad Effendi, cap. xxi.

† It is also occasionally seen in the houses of provincial governors in Asia Minor who affect intimate relations with the capital, or have an object in observing a close imitation of the manners and habits of Constantinople.—W. J. H.

In the open ground between Seraï and Vysa, both right and left of our road, are between 30 and 40 tumuli, also ascribed to the Moscovs. Many of these artificial mounds measure 60 feet in diameter, from 16 to 20 feet in height. They are particularly numerous near Vysa, and the 5 or 6 villages in the neighbourhood of that place, itself picturesquely situated at the foot of the Stranja ridge, and near the head-waters of the Erkene, or Ergina (the ancient Agrianes), running through a fine, but only partially cultivated, plain, inclining S.S.W.

Vysa (Bysia) is the seat of a Turkish third-rate governor, and of a Greek bishop, who, although only appointed two years ago, had just finished building a modern house, in tolerably bad taste, from very excellent materials. For this purpose the ruins of ancient Bysia, on the eminence overlooking the modern town, had been freely used as quarries; and some Greek inscriptions found incidentally during the excavations were collected in the courtyard of the new episcopal residence.

Whilst the Vysa police, or sabtiehs, were seizing the horses necessary for our journey to Bunarhissar (4 hours distant), the governor of the place ordered the absent bishop's house to be opened for me, and had the civility to send me an excellent *déjeuner dinatoire*, just prepared, I suppose, for his own midday meal.

At Vysa is a Roman fountain, repaired by one Ali Effendi, in 1184 (*Héjira*); and half an hour further, on the road to Bunarhissar, is a Turkish fountain on ancient foundations. By degrees the scenery improves; and one hour before reaching Bunarhissar, the country becomes really fine, consisting of spurs of the Stranja ridge, intersected by narrow valleys, rich in soil and magnificent trees, especially along the Porealidéré, 3¼ hours N. of Vysa, where are some ancient remains in a modern burying-ground, on the northern bank of the river, a little to the right of the ford of the main road.

A quarter of an hour further N. is a fine farm, or *chiftlik*, on the property which belonged to the *Tekieh* ("lodge") of the Bektashi dervishes, before the destruction of the Janisaries by Sultan Mahmud. Opposite the farm is the remarkable *túrbeh*, or mausoleum, of Binbir Oghlu Ahmed Baba.

Our horses were so bad, that it took us between 5 and 6 hours to get from Vysa to Bunarhissar. On inquiry, I learnt that the rapacity of the police-soldiers of Vysa was the real cause of our having been provided with the worst horses in the place.

Whilst I was surveying the ruins of the ancient town, the *seymens* had, by order of the governor, been ransacking the stables; and as the proprietors were not sure of being paid for their animals, those who had good horses had bribed the *seymens* to

let them off, so that none remained but the worst beasts belonging to the poorest rayahs.

In the country between Vysa and Bunarhissar, the old Byzantine sky-blue remains the favourite colour of the Greek peasantry for waistcoats, trousers, and even turbans, although the usual rayah colour of the latter is black. The Turks tolerate this deviation, sky-blue being amongst them a despised colour. It was Sultan Murad I. who selected blood-red for the banner of the Ottoman armies, and made sky-blue the regulation colour of the slippers and brodequins of the Jews, in order to deride, by an abject use, the imperial colours of the old Byzantine empire.

Bunarhissar itself is a military site, with the remains of the old Byzantine castle taken and destroyed by Sultan Murad I., in 1371. Three of its ruined towers still overlook the modern village, containing 120 Turkish, 120 Greek, and 130 Bulgarian houses. A few scattered fragments of ancient walls, 2 sarcophagi in the Turkish burial-ground, and the broken remains of a column, serving as supports to a stone bench near the principal havouz, or reservoir, are the only remaining vestiges of former times.

My host, an old Bektashi dervish, who had served as a Baïrakdár of Janisaries during the late war in the Morea, was proprietor of the best coffee-house in the place; he was a philosopher in his way, and proud of the mystic knowledge, scientific reputation, and connections of the Bektashi dervishes all over the East, and especially in Asia Minor and in Syria.

Sultan Mahmud's memory was abhorred by Abdallah Aga and his friends, who were in constant feud with the tax-gatherer, accusing him of taking the new imposts according to the Tanzimati Khairie, and the old ones into the bargain. Sultan Mahmoud, they said, had done them harm in this world, but he would be called to account in the next. Men come and go (*devr adam* دور آدم), but God is eternal, and, according to the Bektash philosophy, the *sáhib zemán* (صاحب زمان), or master of the times, will settle the reckoning after having established the unity of religion over this globe. Then the anti-Christ *Dejal* shall have been vanquished by Jesus, son of Maria, who will have reappeared on earth in order to place the whole world under the laws of Mohamed. Timurlenk (Tamerlane) had been greeted by the title of *sáhib zemán*, but, according to Abdallah Aga, it was by mistake.

After a Turkish dinner, where Abdallah Aga served me along with my own people, he came alone into my room, and said that he had learnt from Soliman Aga how much interest I took in old stones and inscriptions.

"There were several inscriptions in the village," he said, "but the Russians took them away during the late war."

"From your description, they were Greek," observed I; "but have you never heard of another old inscription which I know from history to have existed in or near this place, and about which I have come now on purpose from Stamboul?"

Abdallah Aga remained silent and reflecting for some time, and then, kneeling down near the divan on which I was reclining, he placed his mouth close to my ear, and said in a low voice, "The inscription you allude to was in ancient Syrian or Assyrian (*eski suriani*) اسكي صورياني. Some of our old Bektashis knew it to be ancient Syrian, but nobody could read it; and as it was considered a secret, the piece of stone which contained part of the inscription was taken to our *Tekíeh*, near the *túrbeh* of Binbir Oghlu Ahmed Baba. To-morrow I will take you there. I see you know secret things; but do not mention to any one the object of our expedition. The stone lay a long time near the great reservoir just opposite this house, until a learned dervish from Syria had it carefully transported to the *Tekíeh*."

Early the next day we proceeded to the handsome farm of Haji Bey, standing on the ruins of the above-mentioned *Tekíeh*. Our researches in the farm, and even in the burial-ground round the *túrbeh*, were however fruitless. The mysterious inscription in letters described as resembling "nails" could not be found, although Abdallah Aga maintained having frequently seen it during his residence there as a dervish.

It is therefore probable that the stone was used as material for the walls of the new chiftlik, or perhaps burnt for lime, yet, according to the history of the Cáféjí of Bunarhissar, there can scarcely remain a doubt but that some twenty years ago there still existed a fragment of the inscription mentioned by Herodotus in Melpomene, book iv. § xci., as graven on a column erected at the sources of the Tearus, where Darius was encamped for three days. I inquired in vain in many parts if the waters of the Tearus, whose crystal sources certainly are amongst "the best and clearest waters in the world," were still considered "to be an excellent remedy for various diseases, and particularly for ulcers both in men and horses;" its sources, "thirty-eight in number, issuing from the rock itself, some of which are cold and others warm," are met with in the town of Bunarhissar and in the village of Yene, one hour due N.

In the former place the Buyuk Bunar, 16 ft. by 24 ft., of rude old masonry, built on the native rock, is said to enclose eight sources, which are seen at times bubbling in this principal reservoir; besides this and others, there is the covered reservoir,

called Balukli (of the fish), and numerous springs and fountains in the gardens, &c. &c.

At Yene are two more reservoirs of rough stonework, each containing several springs, a public fountain, and various *bunars* or springs in private grounds.

Thus the thirty-eight sources of the Tearus mentioned by Herodotus may easily be made out. All are cold during the summer, but many of them become so warm during winter that snow or ice thrown into them immediately melts.

Bunarhissar "is at an equal distance from Heræum, a city near Perinthus (the modern Erekli), and from Apollonia on the Euxine (the present Sizeboli), being distant a two days' journey from both" (§ xc.). The clear streams of the Buyuk Bunardéré of Bunarhissar, and the Simer-déré of Yene, traversing the plains where Darius was encamped, unite their waters half an hour W. from these places and form the ancient Tearus, which "flowed into the Contadesdus; the Contadesdus into the Agrianes, the Agrianes into the Hebrus, the Hebrus into the sea near the city Ænus."

Hammer calls the Tearus the Taïnaros of the Byzantines, and says that it is still named the *Teara Su*. I have no doubt that the river of Bunarhissar and Yene is the Tearus, but I never could find out that it was called the Teara Su by any class of the country people.

The Contadesdus is the Dereh of Karishtiran, and the Erkene or Agrianes comes down from Vysa and Seraï; but, according to the late observations of M. Visquenel, the course of the Agrianes is incorrectly laid down in the great Austrian map, and that portion of it between Kaiberli and Atlan should be omitted.

Having passed the 1st of October in examining the country round Bunarhissar and Yene, we prepared to start for Kirk-kelesia early on the next day.

Yene has 20 Turkish, 150 Greek, and 50 Bulgarian houses. Ancient materials and traces of walls are seen in some parts of the village. The course of the Tearus, through undulating cornfields, is occasionally marked by trees.

A Russian general was quartered for some time at Yene during the late war, having his posts of observation at Bunarhissar and Vysa. In those parts of the country which were temporarily occupied by the Russian troops, the denomination of "Moscov" has given way to the less hostile appellation of "Russ," now used both by Turks and Christians.

From Yene to Kirk-kelesia 4 hours, over undulating ground. Halfway we passed a wood of stunted oak, mostly *Vallonia;* and an hour further a wooden bridge on five stone pillars. A little before Kirk-kelesia, at a quarter of an hour's distance to the left, is a tumulus or *tépé*, which was opened in 1829 by a party of

Cossacks, who are said by our *suruji* to have found a stone tomb in it.

Abdallah Aga, the baïrakdár of Bunarhissar, had already told me that a Moghrebi dervish of former days had opened one of the *tépés* near Chorlu, and had found in it a stone tomb.

Kirk-kelesia, situated in a fine corn and wine country, and marked on the Austrian map as the ancient Tarpodizus, and with 16,000 inhabitants, now contains only half that number, living in 600 Turkish and 1000 Bulgarian, Greek, and Jew houses. In about the same proportion Adrianople, the second capital of European Turkey, on the rich and magnificent banks of the Maritza or Hebrus, has been reduced since the late Russian war from 130,000 inhabitants (Austrian map) to 85,000, of whom only 30,000 are Mussulmans.

A *ferik* or pasha of two tails, dependent on the *mushír* or pasha of three tails, of Adrianople, is the governor of the place. He has no regular troops in the town, and disposes only of a few armed policemen, some of whom were sent in search of horses for my use, no *menzil* or post establishment being kept up in the town, except in times of war, for the use of government couriers.

Recapitulation of Distances.

Seraï to	Vysa	4 hours.
„	Bunarhissar	8 „
„	Yene	9 „
„	Kirk-kelesia	13 „

We proceeded in the afternoon to Dŏletagach, 7 hours distant, by the Turkish village of Erekli (50 houses), 4 hours, and another Bulgarian village of 45 houses, 6 hours distant from Kirk-kelesia, passing two more *tépés*, and on our left, before reaching Erekli, a mountain, apparently 1½ hour distant, crowned by picturesque ruins, called Eski (old) or Palæopolis by the peasantry.

Our ride lay over barren, stony highlands, chiefly covered with underwood, but with grass and arable land along the different rivulets, with numerous vineyards in the neighbourhood of the villages. At nightfall, after having traversed a temporary gipsy encampment, we reached the new Bulgarian colony of Dŏletagach, containing about 40 houses. The village is situated in the rich valley of the Téké River, which the traveller is obliged to cross three times before reaching it from the southern side, and as often on leaving it on the N. by the high road to the Balkan.

This main branch of the Téké (not excepting the affluent of the same river an hour before Kirk-kelesia) is the most considerable stream which crosses the main route from Bunarhissar to the foot of the Hæmus, in the direction of Aïdos and Misevria, and there can be no doubt that it is the Artiscus of Herodotus, even

if its modern name of Téké did not etymologically prove its identity.

Darius, on his arrival at the Artiscus, "which flows through the country of the Odrysæ," is said "to have fixed on a certain spot and to have commanded every one of his soldiers to throw a stone as he passed; this was done accordingly, and Darius, having thus raised an immense pile of stones, proceeded on his march" (Melp. l. iv. § xcii.).

This pile of loose stones is not to be found near Dŏlet; but on the heights opposite the village, on the eastern bank of the river, are still to be seen six large *tépés* or tumuli. It is probable that the same spot, the most conspicuous eminence in the neighbourhood, was also chosen by Darius for his head-quarters, and for the erection of the commemoratory pile.

The winding bed of the river and the adjoining low grounds are here covered with innumerable large loose stones, a circumstance which probably caused Darius to give the above-mentioned order to his soldiers.

This double condition of the occurrence of loose stones in and near the bed of the only watercourse which can with propriety be called a river, on the line of march pursued by Darius from Bunarhissar to the Balkan, indicates this spot as the station mentioned by Herodotus in the king's further advance towards the Ister or Danûbe, which was preceded by the defeat of the Getæ and the submission of the people and towns along the Black Sea from Midia or Salmydessus to Mesembria or Misevria. So far the general line of operations of Darius appears to be clear. After crossing the Bosphorus on a bridge of boats (Gibbon and Herod., Melp. iv. § lxxxviii.), he encamped successively at the sources of the Tearus (Bunarhissar) and on the banks of the Téké or Artiscus (at Dŏletagach), and following the direction of Burghas and Akhioli, and receiving the submission of the sea-towns, he afterwards passed the Balkan by the defiles parallel to the sea-coast from Misevria to Yovan-Dervish, moving thus from S. to N. by the same roads which were chosen by Generals Roth and Rüdiger, and by Marshal Diebitch himself from N. to S. in 1829.

The Russians also in 1828. like Darius about 2300 years before, crossed the Danube "at that part of the river where it begins to branch off" (Melp. iv. § lxxxix.), that is, near the modern *Isakcha* (*vide the annexed sketch*).

Sunday, October 3.—From Dŏletagach northwards the hitherto barren upland character of the country disappears, and a more luxuriant vegetation and better cultivation of the soil becomes now predominant, especially as we approach Kizilji Kelesi, 4 hours from Dŏlet. Park scenery, chiefly along the banks of a rivulet, continues for the remaining hour to Faki, a post station in

times of war. After the usual disputes between my *sabtieh* Ali Aga and the Shorbachi, Ali Aga decided on taking on our Kirk-kelesia horses as far as Aïdos.

The seven hours of our afternoon's ride from Faki to Rusukastro lie through a fine oak forest, extending several hours right and left over a hill country, with occasionally open but uncultivated glades.

Four hours from Faki is the Bulgarian village of Karabunar (30 hearths), on a *déré* or rivulet running into the Gulf of Burghas.

A truly Turkish hospitable reception awaited us for the night at Rusukastro, a *chiftlik* or large farm administered by Ahmed Effendi for Abdul Ahad Aga of Drama, himself an intendant of Vehiji Pasha. On the *chiftlik* are 5 Turkish and 35 Bulgarian houses; its extensive grounds, however, are but indifferently cultivated.

"Rusukastro was plundered and burnt in 1829 by the revolted Rayahs, not by the Russians," added Ahmed Effendi, "who usually behaved much better during the war than our own Christian subjects. Sultan Mahmud, however, forbade our punishing the latter after the war; on the contrary, they kept what they have taken, and they are ready again to rob and murder the sons of Islam, should the tide of war bring back the Russian armies."

A report was prevalent at Rusukastro that there were just now a good many robbers and military marauders in the defiles and approaches of the Balkan, and especially in the district of Aïdos; but, as the road to the latter place lies over open ground, I declined an additional escort very readily proffered by Ahmed Effendi.

Distances.

Kirk-kelesia to	Erekli	4 hours.
,,	Dōletagach	7 ,,
,,	Topjiler*	8¼ ,,
,,	Kaibilar†	9½ ,,
,,	Kizilji Kelesi	11 ,,
,,	Faki‡	12 ,,
,,	Karabunar	16 ,,
,,	Rusukastro	19 ,,
,,	Benli§	20½ ,,
,,	Kuchuk Ali‖	23 ,,
,,	Aidos	24 ,,

The whole road from Constantinople to Kirk-kelesia, and thence to Aïdos, is a good country road for carts and artillery, except in the rainy season, when it becomes soft and muddy, and almost impracticable.

* 40 Turkish hearths. † 50 Turkish hearths. ‡ 65 Bulgarian hearths.
§ Simply a well; and generally a turuk, or gipsy encampment.
‖ 50 Mixed hearths.

October 4.—The undulating country between Rusukastro and Aïdos is generally fertile. The waters run off in the direction of the lakes and marshy grounds towards Burghas.

In the account of the 'Expedicion de los Catalanes y Aragoneses contra los Turcos y Griegos, por el Condé de Osuna,' it would appear that Montaner must allude to Burghas and its marshy neighbourhood when he speaks of an important Byzantine arsenal on the coast of the Black Sea, forty leagues from Paccia, Rodosto, and Modico, calling it Estañara, pueblo de mucho trato, donde se fabricaban la mayor parte de los navios de Thracia (in the beginning of the fourteenth century).

From the coincidence in distance from these three places, from its arsenal and its marshy neighbourhood, partially protected by dykes, Estañara can only be identified with Burghas. The Turkish Burghas is the Greek Pyrgos (tower or castle), and the Catalonians may have called the place Pyrgos of the Stranja, or by corruption Estañara.

Aïdos, the chief place of the casá or district of the same name at the foot of the Balkan, is situated on sloping ground, with its 200 Turkish and 100 Bulgarian houses on the banks of a rivulet flowing into a lake N.W. of Burghas. A plain with ten or eleven tumuli, in the neighbourhood of the modern town, extends for a couple of hours E. and W. parallel to the mountain ridge N. of Aïdos. With the exception of the *tépés* known to have been erected by the Turkish armies, the numerous tumuli strewed over the country between Constantinople and the Balkan are often seen in clusters of half a dozen or more near the chief towns of modern districts and departments, or in situations which indicate the sites of ancient towns. The traditions of the present inhabitants also usually connect them with the temporary or permanent occupation of the country by Moscov or Scythian nations; *see* the description by Herodotus of the tumuli erected for their dead by the Scythians and Thracians (Melp. iv. § lxxi., and Terps. v. § viii.)

October 5.—From Aïdos to Misevria the road passes for the first four hours over the Aïdos mountain ridge, by Shimanli * and Karatépé † to Akhli,‡ where there is another group of six or seven ancient tumuli. The scenery is fine; forests of oak and pine indicate a considerable elevation of the country, which is only partially cultivated in the neighbourhood of the villages. We left on our right the village of Glidsha, celebrated for its hot springs, 2½ hours distant from Aïdos on the direct road to Misevria.

We changed horses at Akhli, where an express order of the Governor of Aïdos had directed them to be prepared for our

* 30 Turkish hearths. † 25 Turkish hearths. ‡ 25 Turkish hearths.

journey to Misevria. To change horses after 4 hours' march is always agreeable, though unusual; but the truth was, that we were indebted for this civility to the governor's unwillingness to incur the responsibility of furnishing me with horses for a three days' journey, although Soliman had found people ready to let them. In fact, the roads were far from being safe, notwithstanding the repeated assurances of Ibrahim Bey that his district was a perfect model administration, according to *tanzimat khaïrie* (the good estate), or the reform principles.

Two persons had been murdered a few days ago between Karnabat and Aïdos, a peasant had been attacked and left naked on the road to Misevria, and the news had just arrived that in the preceding night a neighbouring farm had been plundered of 30,000 piastres and some women violated.

The ingenuity of the governor of Aïdos—persuaded, as he said, that his head would ache him (bashimiz agrareshak) if anything unpleasant should happen to his distinguished guest—was therefore directed towards finding good reasons for dissuading me from my projected excursion into the Balkan without betraying the real cause of his alarm, viz., the unsatisfactory state of his own district as far as the life, property, and honour of the Sultan's subjects were concerned.

All his arguments being unavailable, Ibrahim Bey made a last attempt to dissuade me by assuring me that, in a historical point of view, my researches would be altogether useless. "Zulkarnein," (the name given to Alexander the Great by learned Turks,) "whose line of march you are tracing," he said, "never came here: he was a great man; how could he have thought of going into those wild and inaccessible mountains?" Finding, however, this last piece of historical information also useless, the Governor of Aïdos ordered an additional escort, with directions to insist on having the best possible horses at Akhli, the limits of his temporary domains.

From the latter place to Misevria the road lies in a fine, populous, cultivated, and well-wooded and watered valley, running nearly due east between the wooded main ridge of the Balkan and the Aïdos branch of the mountains. Leaving several villages at a distance on our left, we passed through those of Tatar-Koi, Koperan, Barakli, and Injé-Koi, but could find no trace of the lake laid down (in the Austrian map) immediately south of those villages, which are situated on the southern bank of a déré or rivulet coming from the village of Nadir, in the upper valley, 2 hours W. from Akhli. This stream falls into the sea a little N. of Misevria, where, in the winter and rainy season, it forms a marsh about 3 miles long and 2 broad.

It is most probable that the great battle fought in the beginning

of the fourteenth century, between the Catalonians and the Masagetæ retiring to Bulgaria, by the Hæmus, from the service of the Greek emperor Andronicus, took place in the vicinity of Akhli.

Misevria, with some remains of the ancient Mesembria, and the ruins of some mediæval churches, is a miserable collection of 300 houses. The principal export trade in wood is monopolised by the governor, Sultan Effendi, so called on account of his family connexion with the house of the ancient khans of the Crimea, Dŏlet Gheraï. Situated on a peninsula, Misevria would be an important military position if it had a natural supply of water and a good harbour.

Its two only wells, however, are ten minutes distant, outside the western wall of the place; and the anchorage is so unsafe that the Russians (in 1829), although they occupied Misevria, preferred for their shipping the roadstead of Achioli.

This latter city, of 1000 houses, has greatly thriven since the war. Situated on a peninsula, 3 hours S. of Misevria, it has the advantage of water within its walls.

Distances.

Aïdos to	Akhli	4 hours.
,,	Tatar-Koi	5 ,,
,,	Koperan	5¾ ,,
,,	Barakli	6½ ,,
,,	Injé-Koi	7¼ ,,
,,	Misevria	8 ,,

October 6.—In order to reconnoitre the important line of the Hæmus or Balkan, which is so little known that the celebrated historian of the Turkish empire, Herr von Hammer, only mentions seven passes or defiles in the principal mountain chain, I proposed exploring the whole ridge, from Cape Emineh (Finis Hæmi) to Tirnova, at the foot of the mountains between Shibka and Drenova. I have consequently traversed the principal chain of the Balkan seven times, viz.:—

From Misevria to Sujiler.
,, Sujiler to Akhli
,, Akhli to Dobral.
,, Dobral to Karnabat.
From Karnabat to Kazan.
,, Kazan to Selimneh.
,, Selimneh to Tirnova;

and I have also crossed the minor ridges of the Hæmus seven times, viz.:—

From Tirnova to Ozmanbazar.
,, Ozmanbazar to Kazan.
,, Kazan to Chalik-Kavak.
,, Chalik-Kavak to Kŏpri-Koi.
From Kŏpri-Koi to Shumla.
,, Shumla to Paravati.
,, Paravati to Varna.

Leaving Misevria, accompanied by a trusty guide of Sultan Effendi's, we crossed the low ground (marshy in the wet season)

extending N. of Misevria towards the Greek village of Monastir-Koi; and having on our right the scala of Ajanus, at the bottom of a fine sandy beach, we ascended the steep vine-clad southern slopes of the Balkan, leaving several pretty and picturesque villages to the right and left. The highest point of the mountain chain, above Monastir-Koi, may be estimated at about 2000 feet, whilst the pass or Derbend itself lies about 1800 feet above the sea, leading to Bana, 4 hours from Misevria. Our road led, for the last $2\frac{3}{4}$ hours, through thick forests, chiefly oak, crossed in different directions by roads for the carts which convey wood and timber to the neighbouring ports of Misevria, Aianus, Kozluk, and Erekli.

Three quarters of an hour S. of Bana is a strong military position, commanding the high road from Yovan Dervish and Akdéré to Misevria, and covering a bye-road from Yeni-Koi and the main road from Erekli along the seashore to the same place. This position is within 2 hours' march of the scala or landing-place of Ajanus, by the good road which we followed this morning.

Bana, in the upper valley of the Erekli-déré, is $1\frac{1}{2}$ hour from the scala of the same name. It has 60 houses, and is inhabited by Greeks, who dress in the Bulgarian style. The remains of the Greco-Byzantine race are to be found in this part of the country, established on a line of places near and along the seacoast, whilst Bulgarians and Turks have divided amongst themselves the deeper and more inland valleys of the Balkans, as far as Tirnova.

In the afternoon we proceeded in a W.N.W. direction,—

From Bana to Yeni-Koi*	. . . . .	1 hour.
,, Hoja-Koi†	. . . . .	2 ,,
,, Aivachik‡	. . . . .	3 ,,
,, Karamancha§	. . . . .	4 ,,

The road from Bana to Karamancha runs, at an hour's distance, N., parallel to the tops of the highest chain of the Eastern Balkan. The country S. and N. is thickly covered with oak, cleared, for the purposes of cultivation, near the villages which we passed. Occasionally we met carts transporting timber and boards to the seacoast; and at Hoja-Koi we fell in with a wandering gipsy camp with numerous carts.

October 7.—At Karamancha, as in all Mussulman villages of the Balkan, the traveller is obliged to put up in the *musáfir oda* or guest's apartment (generally a small, separate, and not over-clean place), for, notwithstanding the well known hospitality of the Turk, the domestic rules of the family do not allow the

* 30 Greek and Bulgarian hearths.
† 20 Turkish hearths.
‡ 20 Turkish hearths.
§ 20 Turkish hearths.

admission of strangers within the precincts of the women's habitations. Among the common peasantry in the Balkan, Turkish as well as Bulgarian, the cottages have only two chambers, one for provisions and one for the family. Hence travellers cannot be lodged in private houses, unless an aga, or other wealthy man in the village, possesses a larger establishment, separated into *salamlik** and *haremlik*.†

From Karamancha to Sujiler the distance is 3 hours, in a N.W. ascending direction, with fine forests along the fertile, but nearly uncultivated, Kosakodéré.

Sujiler, in a secluded valley, has 40 houses, occupied by an industrious Bulgarian peasantry, who diligently till the rich neighbouring grounds.

From Sujiler to Köpri-Koi, where General Rüdiger forced the passage of the Kamchik in 1829, there are 4 hours of cart-road with steep ascents and descents. Half way, near the village of Kameli, a mule-track strikes off to Buyuk Chenka (3½ hours from Kameli) by Pilav-tépé, a steep conical hill opposite the latter place.

A cart-road also leads from Sujiler by Jafer-Koi (2½ hours) and Akdéré to Yovan Dervish, and another route lies nearly due S., to Akhli (4¼ hours) in the Misevria valley.

Having decided on following this latter direction, we arrived in 3 hours at the small Turkish village of Kaldumaj (25 houses), on the brow of the principal Balkan chain overhanging the Misevria valley.

The road lies almost always through forests. At ½ hour S. of Sujiler is a formidable military position, facing N., and commanding the road in the form of a thickly-wooded semicircle.

After a steep ascent of the heights which crown the position, we followed, for 2 hours, a good cart-road over the plateau of the principal Balkan chain, and descended in half-an-hour from Kaldumaj by the well-cultivated declivities of the mountains into the magnificently wooded and well-watered plain near Akhli, distant 1¼ hour from Kaldumaj; leaving on our right the village of Burnajik, with a pretty minaret, and at 1 hour further Chavderlik.

Between the two latter places we passed a fine and extensive wood of *vallonia* oak.

Soliman Effendi, the owner of a fine property at Akhli, and Nejib Effendi, his son, a youth of sixteen, with the dignified manners of a gentleman of middle age which are so frequently observed among young men in Turkey, received me with true urbanity.

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* Habitation for men, or reception-room. † Habitation for women.

The Turkish population of the districts which we had been exploring since my first stay at Akhli, as, indeed, that of most of the mountain regions that I have seen in Turkey, is remarkable for its superiority over the Bulgarian and Greco-Byzantine Rayah of the same *Kásas*. This superiority is equally striking with regard to the Mussulmen of the large towns, where the wealthier and higher classes rapidly degenerate. The habit of command causes, of course, a feeling of natural dignity; but the physical beauty of the Turkish race must be chiefly accounted for by its former warlike habits, by the pursuit of the active and manly occupations of life, and by its having absorbed, by conversion, the most energetic among the men, and, by marriage, the finest women of the subject tribes. The Greek and Caucasian types have generally superseded the original Tartar features of the conquerors. But conversion of the men, so frequent in the times of Ottoman grandeur, is now becoming extremely rare, in proportion as the power of the government, and of the Osmanli in general, is now weakened; but the fair sex still prefers the proud armed lord of the soil to the humble, ill-treated, and defenceless Rayah. Hence frequent elopements and conversions amongst the Christian women, and useless demands for redress on the part of the parents and clergy.

October 8.—From Akhli to Dobral, by the détour which I decided on making, the distance is 10 hours, viz.:—

From Akhli to	Chavderlik, 30 Turkish hearths	1½	hours.
,,	Nadir, 10 Turkish hearths	2	,,
,,	Uflakhni, 30 Turkish hearths	3	,,
,,	Boghazdéré, 40 Turkish hearths	5	,,
,,	Karanlá, 35 Turkish hearths	6	,,
,,	Rudcha, 30 Turkish hearths	7	,,
,,	Maráta, 30 Turkish hearths	7¾	,,
,,	Kamchik-Mahalesi, 80 Turkish hearths .	8¼	,,
,,	Dobral, 40 Turkish hearths	10	,,

Ascending the great Misevria valley towards Boghazdéré, we found, half way between Akhli and Chavderlik, four tumuli, and proceeding to the poor village of Nadir (erroneously called Nadir *derbend* on the Austrian map), through a partly cultivated plain of rich soil, we crossed near it a road leading from Aïdos to Haramdéré, and thence to Chenka.

The defile of Haramdéré, or the *Nadir derbend* of Hammer, leading towards Chenka, is said by him to be the most eastern of the eight defiles which he enumerates as the *only* roads by which Bulgaria is accessible across the Balkan. This is an error, for in the first instance there are the following four passages between Cape Emineh and the so-called Nadir derbend or Haramdéré:—

1. From Misevria, by Erekli-skelesi and Yovan Dervish, to Varna.
2. From Misevria, by Bana, to Varna.
3. From Akhli, by Aivachik, to Varna; and by Shukür Köpri to Paravati (Pravadi).
4. From Akhli, by Kaldumaj and Sujiler and Köpri-Koi, to Paravati.

All these roads and several bye roads are practicable for carts and artillery. Further, the Hæmus is crossed by roads equally fit for carriages and trains.

5. From Aidos, by Haramdéré and Chenka, to Paravati.
6. From Aïdos, by Boghazdéré and Lubnitza, to Shumla (Shumna).
7. From Aïdos, by Boghazdéré, Kamchik-Mahalesi, and Chalik-Kavak, to Shumla.
8. From Karnabat, by Dobral and Chalik-Kavak, to Shumla.
9. From Karnabat, by Sadova and Kazan, to Ozman-bazar.
10. From Selimné, by Gorodech and Kazan, to Ozman-bazar.
11. From Selimné, by Vechera and Kazan, to Ozman-bazar.
12. From Selimné, by Demirkapu, to Ozman-bazar and Tirnova.
13. From Kasanlik, by Dranova, to Tirnova.

There are besides two direct mule tracks from Yeni Zaghra over the high mountains, and then to Tirnova and Ozman-bazar.

Consequently there are *thirteen* practicable defiles, besides numerous bye and cross roads, between the pass of Kazanlik and Cape Emineh, instead of *five*, as given by Hammer. The other three which are mentioned by Hammer are W. of Kazanlik. And what is most extraordinary is, that Marshal Diebitch, as well as Darius, crossed the Hæmus by roads unknown to the historian of the Turkish empire. From Nadir to Uflakhni is ½ an hour. Near the latter place are again five tépés or tumuli.

At 1½ hour W. from Uflakhni, and within ½ an hour of Boghazdéré, is the line or divide whence the waters run off E. through the Misevria valley into the bay N. of that town, and W. into an affluent which, after forcing its way through the principal chain of the eastern Balkan, falls into the Delli Kamchik near the village of Skotna (Iskotna), about 1½ hour N.N.E. from Boghazdéré.

Under a well-regulated government a high road of great strategical importance, along the course of the Boghazdéré river, would connect the Misevria valley with that of the Delli Kamchik; but the present zig-zag cart-road passes over the steep mountain ridge, which runs nearly due E. from Boghazdéré to Cape Emineh.

Most of the villages of this part of the country are well supplied with turkeys and other fowl. Although the Balkan and the Aïdos ridge are covered with forest, good oak timber begins to be scarce in the districts which have easy communication with the sea-shore and its ports.

There are several obvious reasons which explain this apparently extraordinary fact:—

1st. The general neglect of the forests, and the total want of all scientific inspection and care on the part of the Government.

2nd. The practice of the villagers to use fine thick oak timber, not only for their coffins, but also for their tombs, instead of stone.

3rd. Above all, the ruinous system adopted by the authorities at Constantinople to secure the necessary supplies of timber for the arsenal and other public establishments.

In fact we met "*en route*" several caravans of bullock-carts conveying timber and oak trees of a superior description. They were to be delivered to the Government agents at Misevria and Akhioli, and on inquiry I found that the peasants were paid neither for cutting the wood itself nor for its transport down to the sea-coast. The conductors of the caravans stated that the Sultan, as they well knew, paid for the timber, but that one part of the money remained at the Khazněh (Finance Department), another part was kept back by the Pasha of the province, and the remainder reserved by the *mutsellim* or governor of the district. The effect of this organised system of robbery is, that the best oak wood in the vicinity of the villages is cut down and consumed by the peasants; each community thus endeavouring to throw on its neighbours the onerous burthen of supplying and transporting the timber "*angaria*," viz., by force and gratuitously.

Boghazdéré lies at the foot of one of the wildest mountain gorges of the Balkan; and it is here, or at the entrance of the neighbouring Haramdéré, (Robbers' valley,) that Alexander the Great must have fought the action with the Thracians before he crossed the Hæmus on his march from Amphipolis to the Danube (Ister) — (Arrian, lib. i. c. 1.) The aspect of either of the defiles of Boghazdéré or Haramdéré, the precipitous steepness of the mountains in some parts of the ascent, suited to that disposition for defensive and offensive purposes of the Thracian chariots, which is described by Arrian, and, above all, the distance from Amphipolis, are circumstances which lead me to believe that Alexander forced the passage of the Hæmus by the road of Boghazdéré or by Haramdéré, rather than by any of the other defiles further to the eastward, and consequently more distant from his point of departure. Alexander, reaching the foot of Mount Hæmus, already on the tenth day after leaving Amphipolis, must have made very long marches even to reach Boghaz or Haramdéré by the shortest road, *viâ* Aïdos, the distance being rather upwards of 300 English miles.

Our march by a cart-road, from Boghazdéré to Karalla, ascending and descending the principal Balkan ridge, lay for full an hour through a thick forest. Immediately after crossing the Kamchik river, on a northern slope of the Balkan, we entered Karalla, and continued our route to Rudcha, Maráta, and Kam-

chik-Mahalesi, always ascending the left bank of the river by a good cart-road, mostly through rich and well-cultivated grounds.

A little beyond the latter place, which is a large straggling village, we crossed to the right bank of the Kamchik, and, after ¾ of an hour, fell into the main road, running nearly N. and S. from Chalik-Kavak to Dobral, where we arrived after dark.

Our *sabtieh*, or mounted policeman, declared the high road to be unsafe, and we therefore kept our arms ready for use, especially after sunset.

The monthly Government pay in this part of the country is 60 piastres for a sabtieh on foot, and 140 piastres when he finds and keeps his own horse; but, like most public servants in Turkey, the sabtiehs contrive to eke out their income in various ways. All the villages through which we passed from Boghazdéré to Dobral are Turkish, except at the latter place, where the population is mixed Bulgarian and Turkish.

The following bye-roads were here given me from Rudcha to Chalik-Kavak, said to be cart-roads through the mountains, viz.—

From Rudcha to Bairam-déré	3 hours.
,, Chalik-Kavak	4 ,,

Further distances from Dobral to Aïdos—a cart-road, viz.:—

Dobral to Yeni-Mahalesi	½ hour.
,, Bosilko	1 ,,
,, Kuchuk Chenka	4 hours.
,, Aïdos	7 ,,
From Dobral to Chalik-Kavak—main road	4 ,,
,, Kazan—cart-road	7 ,,

October 9.

Distances.

From Dobral to Kumarova	2 hours.
,, Karnabat	4 ,,

The broad high road from Dobral descends into the arable but treeless plain of Karnabat. Lala-Koi and other small villages are seen right and left on the road, and in their neighbourhood a few scattered trees.

In the plain and on the hills towards Karnabat are seven or eight tumuli; and five minutes before we enter that place a very large tumulus is remarkable, as being crowned by a redoubt of 1829.

Just above Karnabat (S.) a low range of hills forms a fine military position (in a crescent), facing N., the road to the town passing right through the centre; and although the flanks are not naturally strong, they can easily be made so by a few redoubts

On the outskirts of Karnabat a numerous band of Zingani or gipsies were encamped, partly under tents, partly in covered carts. The Balkan ranges are favourite haunts of these people,

The virtually independent community of Kazan has become, since the last Russian war, the national and intellectual centre of Bulgaria, instead of Tirnova (the residence of a Turkish Pasha).

The schools of Kazan supply the best popular teachers of Bulgaria. I admired particularly the fine hand-writing of some young girls of thirteen and fourteen years old. Books, especially Bibles, are received in great quantities from Kiev; and in general the ties of a common origin, language, and religion, between the Russians and Bulgarians, are daily becoming stronger.

General Montresor, who is still highly spoken of, was the Russian commander of Kazan in 1829, when the great emigration of the Christian subjects of Turkey into Russia took place. Kazan only supplied 20 families, because in their mountain recesses they were, as their chiefs told me, less afraid of the oppression or vengeance of the Turkish authorities than the poor people of the plains, and, in case of need, were prepared to resist by arms.

October 11.—Weather clouded.

Distances.

From Kasan to	Bash-Koi, 200 Bulgarian hearths . . .	1½ hours.	Difficult cart-roads.
,,	Vechera, 80 Turkish and Bulgarian hearths	4 ,,	
,,	Selimné	8 ,,	

A quarter of an hour beyond Kazan the road strikes off into the wooded and strong defile of Kiztépé, overhung on both sides by steep and often precipitous cliffs. On the Kiztépé is an abundant source of water, and the remains of ancient fortifications are still visible.

Hence to Bash-Koi 1 hour. Here we crossed a rivulet, traversed some cultivated grounds, and then again entered the woods, striking off occasionally from the cart-road into mountain tracks; travelling 2¾ hours through nearly impracticable passes to Vechera on the upper Kamchik.

A cart-road along this river is stated by our guide to come from Gorodech 2½ hours E. from Vechera.

From Gorodech to Kazan are said to be 3 hours more, the road running one hour S. of Kazan into the same strong defile which we passed yesterday towards the end of our journey from Papas-Koi to that city.

This latter part of the road is said to have been made by the Genii; from which I infer that it is very ancient, and most likely of Roman construction.

Vechera is reported to be extremely healthy, and to have been always exempt from the plague. Indeed its Turkish population is a hardy and fine race; so are the Bulgarians of this part of the country, though not equal to the descendants of the conquerors of these mountain regions.

The ascent out of the Kamchik valley offers occasionally

magnificent views over the lofty wooded ranges of the Balkan. Vechera itself is most picturesquely situated, and the meandering course of its river enhances the beauty of the wild landscape.

The ascents and descents of the mountains form continual defiles of admirable scenery, as we proceed on the road to Selimné. The principal or Shotüré mountain pass begins 2 hours beyond Vechera, and runs in a zig-zag direction for at least an hour, having on the left a wooded and very steep mountain, on the right a precipitous, often perpendicular range of rocks, the lower portions of which are covered with forest, the zig-zag defile forming one of the strongest and most impregnable military positions possible.

The road shows from time to time remains of ancient pavement. On the right another cart-road from Vechera falls into the Shotüré defile at the halfway guard-house. Another hour's ride from the foot of the mountains, over undulating ground, and through cultivated fields and vineyards, brought us to Selimné.

Selimné, with its graceful spires and minarets, in a delightful and fertile vale, and at the head waters of one of the tributary streams of the Tunja river, is a striking miniature of Damascus, the Eden of Asiatic Turkey, and celebrated for its richly watered gardens and orchards. It has at present 1000 Turkish, 950 Bulgarian, Jewish, and Armenian houses, 12 mosques, 4 Christian (3 Greek and 1 Armenian) churches, several *Mektebs* or Mohammedan schools, 2 Bulgarian schools (where Greek as well as the national language is taught, but no Turkish); 2 public baths, and a Government cloth manufactory, where coarse clothing for the Nizam troops is made, at a cost of about 40 per cent. dearer than the Constantinople market price of European merchandise of the same quality.

The population of Selimné, formerly reckoned at 20,000 to 24,000, does not now amount to more than 10,000 souls. At one period since 1829 it was still less, on account of the great Bulgarian emigration into Russia; but many families returned when they found that the Emperor Nicholas had stipulated by treaty for the security of their lives and property.

My host, Signor Yovansho, the wealthiest primate of the place, furnished me with many interesting details of the late war and emigration, having been a conspicuous personage in both, a personal friend of General Montresor's and other Russians of rank, and at the same time a confidential adviser of the late Grand Vizir, Mehmed Selim Pasha.

According to his statement Marshal Diebitch in Europe, and Field-Marshal Paskevitch in Asia, were far from encouraging, the one Bulgarian, the other Armenian emigration into Russia, both commanders finding great difficulties in securing supplies

and provisions for their armies, and the necessary means of transport. Yet the pressure for emigration of the Bulgarians, who had risen in arms against the Porte, was so powerful that Field-Marshal Diebitch at last appointed General Roth to regulate the march of the wandering columns, and about 25,000 families sought and found safety in Southern Russia.

Of these, however, 20,000 returned in consequence of the stipulations in their favour contained in the treaty of Adrianople, whilst 5000 families preferred remaining in Bessarabia, where Signor Yovansho stated that he had known several peasants, now enjoying an income of 80,000 piastres a year, who had gone thither as beggars from Bulgaria. Those who settled in Southern Russia, in consequence of the wars of 1774 and 1829, are said to be generally a thriving and industrious population.

It will be easily conceived that the many thousand Bulgarians who returned from Russia, and who recovered their property in Turkey by the above stipulations, are open and determined partisans of the protecting power at St. Petersburg, the more so as the effects of the last war, and of the reform system of Gŭlhané, tend to break the high, though often intolerant and ŭnjust spirit of the once domineering Turk.

In fact the Porte is helpless in the Balkan, and is therefore compelled to be just, or at least to interfere as little as possible with the warlike population of those mountains, both Mussulman and Christian.

Although the taxes are more onerous for the Rayah population than for the true believers, on account of the karach or capitation tax, yet I have generally found that the Bulgarian and Christian population are, to all appearance, wealthier and living in larger and better houses than the Turks—a fact which must be chiefly attributed to their exemption from military conscription, to the system of local government, which mitigates religious and civil oppression, and to the greater industry of the female portion of their communities. The Rayah women work in the fields and gardens by the side of their husbands or brethren, whilst the Mussulman's harem observes the more secluded habits imposed by the Mohammedan creed.

The Bulgarians are a hard-working, industrious people, and crime is seldom heard of amongst them. They are much more trustworthy than the mendacious and profligate Greco-Byzantines, who exercise some of the lower and effeminate trades, especially that of *bakâl* or grocer in the towns and villages of this part of the country; they are, moreover, very anxious that their own language, and not a corrupted Greek, should be preached from the pulpit.

Selimné and its neighbourhood has suffered much from the late

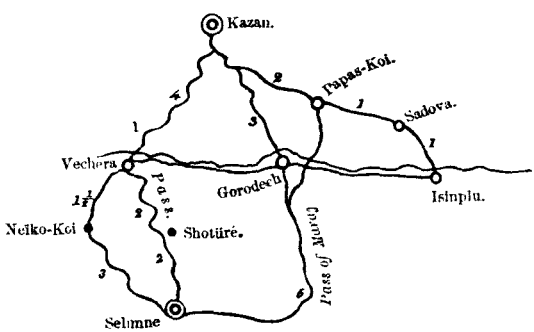
war, but as the Russians maintained a strict discipline, and paid for all their requisites, they have remained very popular in the country.

General Montresor had his head quarters at Signor Yovansho's house, and the latter explained to me the details of his bold and successful march from Selimné on Kazan.

The Russian army being in possession of Varna and Silistria, and having defeated the Grand Vizir in the decisive battle of Kuléfcha, had forced the Balkan on the 16th and 17th July, by the defiles of Yovan Dervish, to Misevria and its plain.

Having established an additional base of operation along the sea-coast from Varna, by Misevria, Akhioli, Burghas, and Sizeboli, Marshal Diebitch beat the Turks at Aïdos, and then advanced on Selimné, where 4000 or 5000 men, with only four guns, under General Montresor, dislodged, on the 14th of August, Soliman Pasha from Kazan, the possession of which place consolidated the insurrection of the Bulgarians of the Balkan, who had risen in favour of the Russians.

Marshal Diebitch then advanced on Adrianople, where he arrived on the 20th of August, and concluded there the celebrated peace of the 11th of September. That Soliman Pasha, who was in communication with the Grand Vizir at Shumla, could have allowed a corps of 4000 or 5000 men to force the passes of Shotüré* and Maraj, which are impregnable, if defended even by a small force with anything like skill and resolution, appears incredible to any one who has examined the natural strength of those mountain passes. Signor Yovansho gave me the following sketch of the communications between Selimné and Kazan, adding that General Montresor had simultaneously moved his troops by the boghaz (or passes) of Shotüré and Maraj:—



The numbers indicate the distances by hours.

* *Vide* road from Vechera to Selimné.

The insurrection of the Bulgarians of the Balkan was one of the most significant and important events of the Russian war. They were, and no doubt would be again eventually, most useful allies in the formidable mountain barrier which separates the plains of Bulgaria from those of Rumili, and which is occupied in about equal numbers by Bulgarians and Turks,—both brave and warlike, though the latter are now more accustomed to the exercise of arms than the former.

Among these the records of their history under their ancient independent *krals* or kings are not extinct. They are proud of their valorous resistance to the Turks, whose haughty Sultan, Murad I., married the daughter of Sisman, king of Bulgaria; and they remember their conquests and wars against the decaying Greco-Byzantines, whom they drove back within the Athanasian Wall, which extends from the Euxine to the Sea of Marmora, only 9 hours W. of Constantinople.

To military observers it will appear a curious fact, that the peaceful Bulgarian peasantry is still encamped in a kind of military order of battle, from the Athanasian Wall to the Balkan. Parallel to that ancient line of fortifications runs a band of waste land 4 or 5 hours deep — an uncultivated neutral territory between the belligerents; next comes another parallel of small hamlets, evidently chosen on rising ground as Bulgarian outlying posts of observation and pickets. Among these Midia, Serai, and Chorlu, forming a line of stations of advanced guards, are already villages and little towns of some importance; whilst the main body occupies the large cities and the plains to the foot of the Balkan, where a second line and reserves are stationed in the mountains.

The Byzantine Greeks not being able during the long decay of the empire to drive back the Bulgarians, these warlike tribes began to cultivate the land round their military stations, up to the time when they in their turn were conquered by the Turkish Sultans, and disarmed; henceforward they restricted themselves to agricultural pursuits, until, in 1829, the Bulgarian reserve and second line stood once more to arms against the Turks, as the remainder would have done in the plains, up to the Athanasian Wall, if the Russians had advanced to Constantinople. This strong sympathy of the conquered Bulgarians with their independent and powerful northern kinsmen is the natural consequence of a common origin, language, and religion.

The more intelligent persons amongst the Bulgarians and the Illyrians laugh at the idea of the re-establishment of a Greek empire at Constantinople, of which some people have dreamt at Athens and even in Europe.

The sturdy Slavonic races call the Greco-Byzantines "*tau-*

shans," or hares, and hold them fit, not to fight, but to be *grammaticos* (clerks), *bakáls* (grocers), tailors, and merchants in the coasting trades.

It certainly is a curious fact, corroborating these popular notions, that the fighting men, who fought for Greek independence from 1821 to 1829, were not the Moreotes and the other Greco-Byzantines, but people of the hardier Albanian and the northern races; for the naval squadrons were nearly exclusively manned by the Hydriotes, Spezziotes, and Poreotes, all of Albanian descent and tongue; the cavalry, under Haji Christo, were Bulgarians; and the only good infantry were Suliotes and Rumeliotes of Albanian and Slavonic origin.

That six millions of Slavonic extraction, living in compact bodies south of the Danube, should submit to nine hundred thousand Greco-Byzantines, whom they esteem their inferiors, scattered in all directions over European Turkey, is a manifest absurdity, which originates in the error of superficial observers, who consider the Slavonic races as "*Greeks*," because the great majority of them are of the "*Greek*" religion. In European Turkey there are eleven millions and a half of Christian Rayahs of various races under the dominion of three millions of Mussulmans.

It is possible and probable that under given circumstances this great majority might coalesce against their masters, but it is quite certain that if they became independent, they would immediately quarrel and fight amongst themselves: they could, in their present social and moral state, with truth answer to another Tiberius,—"that liberty might suit the Romans, but that it was not calculated for the Cappadocians."

The Hatt-Sherif of Gŭlhané—a proclamation of abstract rights—is valuable as tending to diminish the wrongs inflicted on the vanquished races, and to administer limited justice to subjects professing a hostile creed. But this justice is measured out by a victorious theocracy, and so long as the Koran is the rule of law, a practical equality of rights between true believers and rayahs is difficult to conceive.

Tuesday, 12*th October*.

From Selimné to Stareka	6¼ hours.
viz. to the first guard-house	3 ,,
to the second guard-house	5¼ ,,

Fine autumnal weather. From Selimné a steep ascent for 1¼ hour leads to the highest point of the Balkan pass, about 6000 feet above the sea.

Soon after leaving the town, the Neïko-Koi road strikes off to the right, and a mule-track leading from Selimné to Bebrova is seen winding among the mountains on the left. There exists besides a

cart-road from Selimné to Bebrova by the pass, or Boghaz, of Ketenlik (1 hour W. of Selimné). The road to Stareka is a mule-track, occasionally used by carts carrying firewood and timber.

The whole ascent is very steep, through formations of limestone and slate. The upper part of the pass is occasionally level for small distances, the strata dipping W.N.W. Right and left near the road steep naked rocks command the upper defile.

Three hours from Selimné is a guard-house. The road for the last 1¼ hour was over rocky ground, with a slight covering of soil, supporting brushwood and stunted trees, the ancient forest having been destroyed, owing to the habitual carelessness of the Turkish government. On the descent to the north the trees show a better appearance.

At 3¼ hours from Selimné a road strikes off at the head waters of the Bash-Koi affluent of the Kamchik river.

The highest point of our line of march has just been the remarkable spot whence the waters of this portion of the Balkan run off towards the *Danube*, the *Black Sea*, and the *Mediterranean*, by the head waters of branches of the *Yantra* (or Jatrus), of the *Kamchik* (or Pamysus), and of the *Tuncha*, which falls into the Maritza (or Hebrus).

From the guard or derbend house, for 2¼ hours, to the next guardhouse of the Demirkapu Derbend, the descent is more or less rapid, generally through thick forest. Soft or white-wood trees of various kinds, often 50 and 60 feet high, are occasionally interspersed with oak. On the left of the road is an immense amphitheatre of the Balkan; ranges towering above each other in a westerly direction. The nearest are covered with forest, showing here and there openings of green turf.

The Demirkapu, or Iron Gate Pass itself, 6 hours from Selimné, scarcely deserves the name, being a small stony projection, whence a rapid descent through thick forest leads in ½ an hour to the small village of Stareka, where we rested for the night.

Wednesday, 13*th October*.—From Stareka to the monastery of St. Nicola is a distance of 8 hours, viz.—

From Stareka to	Zurt-Koi, 50 Turkish houses	1 hour.
,,	Ereskli, 200 Turkish and Bulgarian houses	2½ hours.
,,	Lower Bebrova, 300 Turkish and Bulgarian houses	3 ,,
,,	Illiena, 600 Bulgarian houses	5½ ,,
,,	Yakovzi, 50 Bulgarian houses	7 ,,
,,	Convent St. Nicola	8 ,,

There are two good cart-roads from Stareka to Bebrova, the northern one leading by Bulgha-Koi to Upper Bebrova, the southern by Ereskli to Lower Bebrova, also called Parikler, either distance being 3½ hours.

Our southern line of march took us in 1 hour by Zurt-Koi and Ereskli, through well-cultivated grounds, to Lower Bebrova. These villages are rather constituencies of numerous detached farms. Ereskli extends for upwards of an hour on both sides of the road, and Bebrova is spread over at least a square league of ground, a disposition which indicates not a little degree of security amongst the inhabitants.

Passing between two considerable Balkan ranges, we crossed several minor affluents of the Yantra river, where we found the country farms well stocked with poultry of all descriptions, and numerous flocks of sheep and herds of cattle were seen grazing around. The latter during the winter, when forage is scarce, are fed on oak-leaves collected during the autumn.

From Stareka downwards oaks are the predominant trees. The furthest mountain range is at this season capped with snow (which fell there yesterday for the first time), and detaches itself in great magnificence from the deep blue sky, whilst the nearer valleys and glens retain their dark green, set off by the variegated autumnal hues of the groves and fruit-trees that surround the prosperous farms.

Vegetation in general is rather less vigorous on the northern slope of the Balkan than on its southern declivity.

For two hours more the scenery and appearance of the country continues the same as far as Illiena, a large and industrious Bulgarian town of 600 houses. Its staple manufacture is linen, and the coarse cloth called *abá*.

Great natural water-power and cheap provisions would facilitate the establishment of manufactories in all parts of the Balkan, if a just and strong Government could afford sufficient security for the capital employed.

Beyond this place the detached farms cease; whilst 1½ hour more brought us to the small village of Yakovzi, charmingly situated at the entrance of the deep Boghaz of Monastir. This strong defile is at least an hour long. At its eastern and western entrances are two guardhouses, each having a couple of Turkish Derbendjis to look after the safety of the traveller and merchant.

A causeway, originally Roman, but often repaired, occupies the whole length of the pass; halfway a stone bridge, of doubtful appearance, facilitates the passage of the river, which rolls over its broad stony-bed, in a thousand cascades, through the whole narrow and richly-wooded pass.

Precipitous rocks, with occasionally perpendicular projections and crags of limestone and slate (the strata dipping N.W.), command the continual windings of the road. The height of the mountains forming this splendid gorge is between 700 and 800 feet above the bed of the river. They decline a little towards

the western outlet, without losing anything of their bold and picturesque features.

Just at the outlet of the Monastir Boghaz the convent of St. Nicola offers a comfortable halting-place to the weary traveller, and is generally chosen for night quarters by those going to Tirnova, which is too distant to be reached in one day from Stareka, either by Lower Bebrova and the Monastir Boghaz, or by the nearly parallel northern road of Upper Bebrova, by Karagach, and by the Minde Boghaz, which pierces the mountains 2 hours N. from St. Nicola.

The convent is inhabited by six or seven monks, and sixteen servants. Bulgarian only is spoken and preached here, as well as in all the neighbourhood, except in the sees of Tirnova and Selimné, where Greek is the church language. The Bulgarians generally dislike the upper clergy sent from Constantinople, whom they accuse of exactions, cupidity, and oppression; the true orthodox Bulgarian looks more to Kiev than to Stamboul. The *igumenos* or head of the convent did not partake of my dinner, because it was a fast day, but he freely helped himself to some *raky*, or brandy, which one of his servants brought into the room, having hidden the bottle in his sleeve, after the true Turkish fashion. In most other respects also I may describe the *igumenos* as a devout Christian Turk, on foot as well as on horseback; far different from the Greeks, who ride detestably, the worthy *igumenos*, like all Bulgarians, was an excellent horseman.

Early next morning, Thursday, 14th October, we rode 3 hours to Tirnova, viz.:—

From St. Nicola to	Kovanlik. 70 Bulgarian houses . . .	1 hour.
„	Chiftlik-Koi, 60 Bulgarian houses . .	2½ hours.
„	Tirnova	3 „

The country is well cultivated, the trees abundant and fine, and the plains richly watered. The hills round Monastir, Tirnova, and the villages, are covered with extensive vineyards; and we now and then met Bulgarian women of clean appearance spinning and leading their laden horses to the neighbouring markets.

Tirnova has at present 1500 Christian and 2500 Turkish houses, and about 20,000 inhabitants; 8 churches, 2 schools, together with 20 Turkish mosques, mektebs, and baths.

Situated in a deep valley along the rapid and winding course of the Yantra, its various quarters, as well as the old Roman and Bulgarian castle, are commanded on all sides by steep mountains and crags.

The north-western part of the lower town, and the western acclivities of the hills beyond the Yantra, are covered by the Bulgarian quarters; the remaining larger part of the town is Turkish. The Mussulman habitations are generally surrounded

by small gardens or courts, studded with trees. The Christian division, where the houses are closer together, is devoid of this great embellishment.

I was quartered on a wealthy primate of the town, who received me with much hospitality. The seclusion of the women of the house was nearly as complete as in a Turkish harem; yet they came occasionally into the hall where the men were assembled, to present sweets and coffee after the Greek fashion. During this ceremony they remained standing, whilst the men were reclining on the divans; and they immediately afterwards withdrew, without entering into conversation or mixing with the society in the European manner.

Yanko Chelebi was a clear-headed, shrewd man, not altogether unacquainted with the state of the world or of Europe. One of his younger sons had been for some time in the Lazarist school at Pera, but the old man had had sense enough to withdraw him when he found out that the boy was taught Latin and French instead of Turkish and Bulgarian.

Tirnova is a cheap place, though the capital of Bulgaria Proper. Abá-cloth, raw silk, and wool, besides all the necessaries of life, are abundant. The bazar is supplied with great quantities of inferior German wares and manufactures brought down the Danube. The English are beginning to enter into competition by establishing large and well-sorted depôts at Varna with a view to supply the markets of the interior. The Austrian steam navigation on the Danube and in the Black Sea, however, will secure the advantage to the German trader if he continues to show as hitherto, intelligence and activity.

Austria was the first great European power which relinquished and subsequently abolished all stringent quarantine laws, and the wisdom of this policy is becoming daily more evident. The great drawback is in the exclusive laws of Hungary and in the semi-barbarous state of that country, where the bulk of the peasantry are worse off and less comfortably circumstanced than the tillers of the soil in Turkey, especially the Mussulman part of the landowners.

Tirnova had suffered comparatively little during the late war; and Yanko Chelebi stated that he had also prevented any emigration in 1829. The requisitions of the Turkish troops at Shumla had been, however, very heavy, and, as usual, not paid for; whereas the nearest Russian post, which was a picket at Grabova, had never taken anything without paying for it.

Whilst I was at Tirnova there was some talk of a post-line being established between that place, Selimné, Aïdos, and Akhioli, or Misevria, on the coast, whence the correspondence was to be taken by an Austrian steamer to Constantinople.

The proposition was obviously useful, but Yanko Chelebi said that nothing of the sort would be done; his opinion was principally founded on the want of all steadiness in the provincial administration, arising from the frequent change of governors.

The Pasha of a province is often removed every six or twelve months, and the changes in the *sanjaks* and *casas*, or districts dependent on his influence, are of course as frequent. Originally it was fear that induced the Porte to adopt this system, in order to check the local influence of the governors, and diminish their means of eventual resistance; but this cause has long disappeared. If the Sublime Porte itself be powerless in Europe, the Tanzimat has radically destroyed the authority of the provincial Pashas, who are unable effectually to protect the degraded rayah.

The new system of paying the provincial governors from the Imperial Treasury is, no doubt, an immense improvement in theory, but in reality the governor often helps himself now, as well as formerly, by all sorts of underhand monopolies.

Selimné has alternately belonged to the administration of Silistria *on the Danube*, or of Adrianople *on the Hebrus*. Even the minor districts are not exempt from these destructive changes. Ahlyié has belonged in succession to the Pashas of Varna and of Kirk-kelesia.

Tiles are generally used for roofing the buildings since we crossed the Delli-Kamchik, on the road from Karnabat to Kazan. Straw huts, mostly inhabited by Mussulmans, only occur in a few villages; and in general it must be observed, that in the larger towns and in the great villages the Bulgarian quarters are superior to the Turkish.

I heard that there are two direct mule-tracks over the Balkan from Tirnova, by Yeni-Zaghra, to Ianboli; one by Kelifer and Chaïn-Boghaz, the other by Illiena, Plakova, and Ferdej.

Friday, October 15th.—Return to the Monastery of St. Nicola by the northern or lower road, 4 hours, viz.:—

Tirnova to Ravditza, 400 Bulgarian houses	1½ hours.
„ St. Nicola	4 „

Before leaving Tirnova I exchanged visits with Omar Vaïs Pasha, the Mirmiran, or Governor-General of the district. He was a comely man, dressed in the dignified old Turkish costume.

A road due N. led us from Tirnova, by a rocky defile and Roman causeway, to Arnul-Koi, just above the town, or rather its suburbs. The various footpaths and roads from hence to Ravditza were crowded with groups of Turks and Bulgarians—men, women, and children—all moving to the weekly fair (Fridays and Saturdays) of that extensive borough (400 tiled houses).

As far as the eye could reach, the roads were covered with

oxen, buffaloes, cattle, horses, and carts; sedate Bulgarian women and light-hearted gipsy girls were riding on donkeys and mules. I calculated that more than 10,000 people and upwards of 2500 carts were assembled at Ravditza. Cattle in great number was bartered; for live stock of all description is to be had, as well as abundance of provisions, warm clothing, carpets, excellent shoes and boots, wood, and large quantities of German wares.

Many gipsies, or Zingani, being collected at Ravditza, I tried there, as I had already done during my travels in the Balkan, to obtain some information respecting the metropolis of the gipsies in this part of Turkey, mentioned by Mr. Borrow as having been taken by the Russians in 1829, after a desperate resistance, but the answers were uniformly that no such place existed.

From Ravditza to the Monastery of St. Nicola the distance is at least 2½ hours, by a good cart-road. Nearly every quarter of an hour we passed through or close to thriving villages, averaging 200 houses; the landscape was varied by a succession of vineyards, cornfields, and meadows, interspersed with groves of trees and park scenery; and the superior cultivation of the ground called to the mind some of the districts of Lombardy.

Saturday, October 16th.—From St. Nicola to Hassan-Faki, 12 hours, viz.:—

St. Nicola to	Kapinlu, 100 Bulgarian and Turkish houses . .	¾ hour.
,,	Minde, 100 Bulgarian houses	2 hours.
,,	Slatar, 150 Bulgarian houses	3 ,,
,,	Yeni-Koi, 120 Bulgarian and Turkish houses .	3¾ ,,
,,	Chulün, 120 Bulgarian houses	4½ ,,
,,	Kesrova, 200 Bulgarian houses	5½ ,,
,,	Cheh-diche, 100 Bulgarian and Turkish houses .	6½ ,,
,,	Laila, 100 Turkish houses	9 ,,
,,	Karasiler, 50 Turkish houses	10½ ,,
,,	Hassan-Faki, 40 Bulgarian and Turkish houses	12 ,,

As far as Slatar, situated on the banks of an affluent of the Yantra, the road lies over cultivated open ground. Beyond Slatar there is a gradual ascent to Yeni-Koi, through a fine, richly-wooded, and carefully cultivated, undulating plain, abounding in produce of every kind, as maize, corn, wine, fruits, and tobacco, the latter being described as of a quality equal to that produced in the pashalic of Adrianople.

Leaving the higher, forest-clad Balkan ridges of the Injé-Baïr on our right, we crossed between Yeni-Koi and Chulün, a narrow projection of the Balkan, and then followed the northern course of another affluent of the Yantra, through a wooded defile, along the western bank of the rivulet. Numerous herds of horses, cows, buffaloes, sheep, and goats enlivened the scenery.

The Bulgarian breed of horses is small, but strong, hard-

working, and long-lived. One of our horses was three and thirty years old, having been a common packhorse for the last twenty-four years, and still did his work well.

The last villages are at the head-waters of small valleys, each house surrounded by fruit-trees, often in a small garden.

The security of the districts, inhabited nearly exclusively by Bulgarians, is evidently much greater than that of those with a mixed population. In the course of one year not less than thirty-four murders were committed on the roads from Burghas and Misevria to Tirnova, and the primate of the latter place stated to me that few of the culprits had been detected. On the road we passed many cheerful groups of the Zingani, or gipsies, who are but little molested in any part of Turkey.

The tolerance of religious sects in the Ottoman empire is generally remarkable, but is founded on the assumed superiority of the Mussulman creed over all other religions, which are equally tolerated, but also equally despised; so that the lowest Mussulman peasant considers himself, and is by the religious law, infinitely superior, not to the lowest Christian rayah, but to the richest primate in the Sultan's dominions, be he Greek, Catholic, Protestant, Armenian, Jew, or Zingani.

At Chülün our line of march falls into the high road from Tirnova to Ozman-Bazar.

From Tirnova, by Leskovaz, to Kosarva is a distance of 4 hours; and thence to Chülün 1 hour more.

Usually the Chülün affluent of the Yantra is fordable during all seasons, but a ferry-boat is kept in readiness during the winter and early spring, at the station of Chülün. It can, however, only carry over one horse at a time.

The dress of the Bulgarian women is very tasteful; that of the men warm and comfortable; and the latter is far superior in style to the effeminate modern Greek *fustanella*, or petticoat; though it wants the dignified effect of the Mussulman turban. The Bulgarian saddles and bridles are elegantly ornamented, and are only surpassed by the neat Oriental taste of the Damascus work.

As we approached Hassan-Faki, by a slow and gradual ride, the ground became less richly cultivated, and at Laïla and Hassan-Faki the vine was no longer to be seen. The straggling houses are still mostly roofed with tiles, a few only being thatched with straw. The oak trees are cropped for fodder, and though some patches of wood still remain, the ground is generally cleared for pasture and agriculture.

At Hassan-Faki, where we arrived after dark, two of my people, who had gone on in advance, found great difficulty in procuring quarters for the night. They had halted before the best house in the village, belonging to a Rayah, but had knocked

in vain, receiving no answer to their summons, although they heard voices inside. The proprietor was evidently loath to receive Mussulman travellers, and these resorted at last to the novel expedient of lighting some lucifer matches, and swearing that they would set fire to the roof of the house, when instantly the door was thrown open to welcome them.

Generally speaking, the houses in this part of the country show a considerable degree of comfort amongst the inhabitants. There is an abundance of copper vessels and utensils and of warm bedding. Open chimneys are most generally used, but in the large towns stoves, approaching the Russian pattern, are coming into use.

Sunday, October 17th, 1847.—From Hassan-Faki to *Kazán* (Kazaan) 7½ hours :—

From Hassan-Faki to Ozman-Bazar,	700 Turkish houses 100 Bulgarian houses	1½ hours.
,,	Ishelol, 30 Turkish houses	3½ ,,
,,	Chatuk, 150 Turkish and Bulgarian houses	5½ ,,
,,	Kazán (Kazaan)	7½ ,,

The road from Hassan-Faki to Ozman-Bazar runs through cultivated undulations of the Injé-Bair. We passed Ituff, at the head of a beautiful valley, whose waters still flow into the Yantra River.

Ozman-Bazar, a considerable and thriving borough, with several mosques and baths, and a Turkish fountain constructed of ancient materials, lies in a sheltered position, surrounded by vineyards and orchards. It is a post-station on the main road from Ruschuk to Kazan, Selimné, and Adrianople. Remains of an old Roman causeway are still visible. Timber abounds in the neighbourhood, and the doors and framework of the houses are generally of sound oak. At Ozman-Bazar, as in most villages of the Balkan, the doors are seldom provided with locks,—a sure sign of the general honesty of the mountaineers of this part of Turkey.

From Ozman-Bazar the ground ascends for 2 hours to the first derbend guardhouse at Ishelol.

We passed numerous straggling farms and villages on each side of the road on going to the second derbend guardhouse, whence close up to Chatuk our way lies chiefly through forests and thickly-wooded defiles, with occasional traces of an ancient road, and patches cleared for pasture and agriculture.

Chatuk, a pretty village, is picturesquely situated at the headwaters of the Buyuk Kamchik. It has 150 Turkish and Bulgarian houses. We met at a coffee house two *Shorbachi*, or headmen, from Kazan, on their way to Ozman-Bazar. They were accompanied by a common police soldier of Omar Pasha's, who was evidently the most important personage of the party.

On the way from Chatuk to Kazan are two more derbend guard-houses, one at 1¼ and the other at 1½ hour from Chatuk; and between them is a first-rate military position, on detached barren heights, extending in a crescent of 1½ mile, facing the N.

The main road winds from E N.E. to W.S.W., along the foot of the position, then passes through it over open ground, after which a brisk descent of half an hour leads to Kazan. No wood right or left; the immediate neighbourhood of Kazan is also bare, with the exception of the Kiz-tépé (already described) and the western mountain range.

Monday, October 18th.—The direct road from Kazan to Chalik-Kavak, by Karatler, being described as very difficult and not to be chosen on account of the unsettled state of the weather, we resumed our former road from Kazan by Papas-Koi, through the valley of the Delli Kamchik, as far as Sadova, viz.:—

Kazan to Papas-Koi	1¾	hours.
,, Sadova, 45 Turkish houses	3	,,
,, Kedir-Fekli, 60 Turkish houses	4	,,
,, Peklatch, 25 Turkish houses	5	,,
,, Malenich, 40 Turkish houses	5½	,,
,, Rubja, 50 Turkish houses	7½	,,
,, Murad-déré, 40 Turkish houses	7¾	,,
,, Chalik-Kavak, 80 Turkish and Bulgarian houses	11	,,

From Sadova our line of march proceeded for 2½ hours more as far as Malenich, through a rich valley, in which the forest has been largely cleared for agricultural purposes. Its Mussulman population lives apparently in great ease and abundance, and we met many Turkish peasants with cart-loads of wine for the wealthy Christian population of Kazan.

Notwithstanding the great abundance of wood and the cheapness of provisions and wages, the inhabitants of Kazan have not ventured to introduce the manufacture of cloth on European principles. They are fully aware of the advantages of the recent improvements, many of them having seen the large Austrian establishments; yet prejudice, want of the spirit of enterprise, and, above all, the insecurity attendant on all large outlay of capital under Eastern despotism, have prevented them from introducing changes and improvements. They seek to hide as much as possible their prosperity from the provincial governors, aware, as they say they are, of the Turkish proverb, "the public revenue is like a river of fine water; he who approaches it and does not quench his thirst is a fool." The Kazanese have, from sad experience, little faith in the Tanzimat and in the pretended Turkish reforms.

During the whole route, from Kazan down to Malenich, we still found the roads in excellent condition for the time of year; the fields teeming with verdant young crops, and the pastures

covered with horses, buffaloes, oxen, kine, and *Abá* sheep of a brown colour. The Turkish women in this part of the country wear handsome *burnuses* and black and white *ferejis*.

From Malenich downwards towards Kamchik-Mahalesi, the river flows through a narrow defile, chiefly between abrupt rocks and crags. It is everywhere fordable. The road to Rubja leads over the high mountain range which here shuts in the river.

From Rubja to Murad-déré is ¼ of an hour, and thence by the road to Kamchik-Mahalesi to the point of intersection of the highway between Dobral and Chalik-Kavak is 1½ hour more, in all 9 hours from Kazan. Turning off nearly due N., towards Chalik-Kavak, the village of Rubja appears on the left, forming, with Murad-déré, part of a strong military position of 1000 to 1200 yards extent, facing E., towards the Dobral main road, and one of strategical importance, as it forms the nucleus of several roads, viz.,—

Rubja to	Verebitza	5 hours.
,,	Kamchik-Mahalesi	1¾ ,,
,,	Dobral	2 ,,
,,	Chalik-Kavak	2 ,,

From Murad-déré another road also leads direct to Chalik-Kavak (2 hours) between the mountain track thither from Rubja and the high road from Dobral, but it is more difficult than either of them.

One hour and a half's march on the latter from the above-mentioned point of intersection led us through a great wooded defile, and half an hour more over an undulating plain brought us, after dark, to Chalik-Kavak. This great mountain defile is generally from 40 to 100 yards broad, the military road being nowhere less than 10 yards wide, and practicable for all arms and heavy baggage trains. The mountain slopes, between 300 and 400 feet high, are not very steep, but of difficult ascent on account of the large trees and the thick underwood.

Chalik-Kavak is a poor hamlet of 80 houses, but before the war which terminated in 1774 it contained 700 families, many of whom subsequently emigrated into Russia.

From Chalik-Kavak a direct mountain-path to Kazan (9 hours) is very rough and precipitous. From Chalik-Kavak to Shumla by the main road, *viâ* Smiadova, the distance is 8 hours.

Tuesday, October 19th.—

Chalik-Kavak to	Bairam-déré, 60 Turkish houses	1½ hours.
,,	Bekje, 55 Turkish houses	3½ ,,
,,	Lubnitza, 60 Turkish houses	4½ ,,
,,	Mereke, 60 Turkish houses	5½ ,,
,,	Buyuk-Chenka, 80 Bulgarian houses	6¾ ,,

From Chalik-Kavak the road to Bairam-déré leads along

the left bank of a rivulet, through a richly-wooded and watered valley. From Bairam-déré a direct but difficult cart-road leads to Rudcha and Keremetli-Koi, and thence by Karanlá to Boghaz-déré, on the S. slope of the Balkans.

At Bairam-déré we crossed a wooded mountain ridge, and reached Bekje, whence a rivulet runs into the Akeli Kamchik or "wise Kamchik" River, passing a little W. of Mereke, through a picturesque and rocky gorge.

Our whole line of march from Bekje to Buyuk-Chenka lay through a rich, well-cultivated valley, with occasionally fine oak forests.

From Lubnitza a good cart-road leads to Boghaz-déré, steep for an hour near the latter village, whilst another leads to Shumla, and another from Mereke to Yeni-Koi. From Buyuk-Chenka to Boghaz-déré a good cart-road, which may be eventually of high strategical importance, runs along the left bank of the Delli Kamchik River, *viz.* : From Chenka by Kisik, Déré-Koi to Boiala, 3½ hours; thence to Skotna (Iskotna), 1 hour; to Karanla, 1½ more; and, after crossing the river, 1 hour to Boghaz-déré; in all, from Buyuk-Chenka to Boghaz-déré, at the head-waters of the Misevria Valley, 7 hours.

From Boiala a direct road leads to Boghaz-déré by a steep mountain-path, in 2-2½ hours, crossing the river at the former village.

From Buyuk-Chenka another cart-road passes by the strong position of Pilav-Tépé to Sujiler, another military point.

From Chenka to	Kara-Ahmed Mahalesi, 40 Turkish houses .	1 hour.
,,	Butresk, 45 Turkish houses	2 ,,
,,	Köpri-Koi, 40 Turkish and Bulgarian houses	3¾ ,,

The junction of the Delli Kamchik and of the Akeli Kamchik takes place a short distance above Butresk, on the right bank of the main river. A good cart-road from Chenka leads through a high forest, chiefly of fine oak, crossing the Delli Kamchik at Kara-Ahmed in 2½ feet of water, and runs along the right bank to Köpri-Koi.

In these districts the quarters of the Turks and Bulgarians are usually very clean, those of the Greeks and Jews filthy; the latter are only to be found in the towns.

In the forest between Butresk and Köpri-Koi four *tépés*, or tumuli, occur on the left of the road.

Immediately N. of Chenka is a fine military position of about 900 yards extent, and facing N. It covers the roads to Chalik-Kavak and to Sujiler; but it can be turned by its left, through the gorge by which a direct road passes from Yeni-Koi to Mereke.

Kara-Ahmed also offers a fine military position in a semicircle

of 1200 to 1500 yards, facing N.N.E., and covering the Kamchik and the above-mentioned position of Chenka.

Near this important strategical spot the forest is crossed by several roads from Chenka over the Buyuk Kamchik River.

Wednesday, October 20th.—

From Kopri-Koi to	Kadi-Koi,	100	Turkish and Bulgarian houses		2 hours.
,,	Fetla-Koi,	30	,,	,,	$3\frac{1}{4}$,,
,,	Aiasma,	80	,,	,,	$4\frac{1}{2}$,,
,,	Markovcha,	120	,,	,,	$5\frac{1}{4}$,,
,,	Kulefcha,	300	,,	,,	$8\frac{1}{4}$,,
,,	Shumla				$11\frac{1}{4}$,,

At Köpri-Koi a narrow wooden bridge crosses the river, and near it is a ford 2 to 3 feet deep.

The village itself is newly built. It was burnt in 1829, as the Aga told me, by order of Ali Pasha, before the arrival of General Rüdiger with the first Russian column that forced the passage of the Balkan. Since that period the various military lines over the Balkan have been so fully reconnoitered and studied by Russian staff and general officers, that it is probable that should war again break out, the Russian armies will operate on a very different plan from that of the campaigns of 1828-29, when the passes of the Balkan were scarcely known. The positions of Shumla and Varna alone, as hitherto occupied by the Turks in their defensive operations against a northern enemy, are insufficient for covering the Balkan passes that have now been so thoroughly examined. The position taken up by Ali Pasha, in 1829, near Köpri-Koi was a very weak one, and the first serious onset of General Rüdiger obliged the Turks to abandon it.

The cart-road from Köpri-Koi to Kadi-Koi, after crossing the above-mentioned ford, leads over the lower undulations of the Liusum mountain-range, for the first hour through forest and along muddy tracks.

Near Kadi-Koi are two *tépés*. In passing on to Fetla-Koi, we left Buldir-Koi (40 Turkish houses) close by the road, and Kumarova (45 Turkish and Bulgarian houses) about a quarter of a mile S.W. from the highway.

The country being clear and open, at least a dozen tumuli, in elevated situations, are seen in various directions between Paravati and Kumarova, sometimes single, sometimes in clusters of three or four.

Markovcha is a flourishing village, with larger houses than usual, some of them consisting of two floors, and most of them neatly tiled (since 1829), whilst the other villages in the plains from Chenka hence are merely straw-thatched. At Markovcha are two Roman fountains, partly decayed, and not far off a large tumulus.

From Paravati a good cart-road leads across our morning's line of march to Kumarova, and thence by Yeni-Koi direct to Mereke by a ford of the Akeli Kamchik. We observed many brood mares in this part of the country. Fodder and hay seem generally abundant, and are often even not housed.

From Markovcha to Kulefcha our road passed over undulating high land. A moderate descent from the heights above Kulefcha led into the plains of Shumla.

Enfilading this descent, Marshal Diebitch had chosen his position on the undulating ground *under* the village of Kulefcha, and separated from the *upper* position by the rivulet called Bashbunar. Instead of taking up defensively the strong upper position of 1¼ mile in extent, protected by precipitous limestone cliffs (partly overhanging the course of the Paravati River) on the right, with the villages of Kulefcha and Madara in the centre, and the left covered by steep ravines overgrown with brushwood, the Grand Vizir resolved to attack the Russians in their own excellent position, evidently chosen with the view of drawing the half-disciplined Turks into the open plain.

Twenty minutes from Kulefcha the road to Shumla leads over the Bashbunar by a Roman arch. Numerous *tépés*, or tumuli, are scattered in elevated positions over the plains between Kulefcha and Shumla.

Two hours before this latter place the soil can scarcely be said to be cultivated. It is not unusual in Turkey to see the rich plains in the immediate vicinity of the residences of the provincial governors neglected and desolate, whilst the distant valleys, safe from the oppression and rapacity of the governors and their satellites, are teeming with plenty and abundance.

Thursday, October 21*st.* At Shumla.—The Governor of Shumla states the number of Turkish houses to be 5000, whilst those of the Christians are computed at 1000; the number of inhabitants ought therefore to be from 25,000 to 30,000. Formerly the Turks alone amounted to 35,000, besides 6000 Christians. There are 30 mosques and baths, 1 Greek and 1 Armenian church, and 3 Bulgarian schools, with masters from the normal establishment of Kazan. There are also two barracks for the garrison, one for the infantry, and one for the cavalry, besides a new hospital, all built of stone.

Three forts in the plain and one on the heights are modern constructions, but the fortifications are far from being finished. The present garrison of this most important fortress is only 1000 infantry and 800 cavalry.

Some Roman remains are seen here, in the shape of decaying fountains and arches.

The personal security of the inhabitants is far from complete;

the roads are infested by robbers, and it is not unusual for children to be carried off from the town to the mountains, and there kept, under menace of torture, until ransomed by the parents. Conversions of Christian girls to the Mussulman faith are of frequent occurrence.

Friday, October 22*nd.*—

From Shumla to Madara,	40	Turkish and Bulgarian houses		3	hours.
,, Kasbéin,	45	,,	,,	4	,,
,, Velshin,	30	,,	,,	8	,,
,, Paravati,	220	,,	,,	9½	,,

The main road from Shumla to Madara leads near the latter village over a Roman arch thrown across the Paravati River. Close to Madara, a little to the S., is the village of Kulefcha.

An hour beyond Madara lies Kasbéin; and we passed some minor villages of mixed population, with 15 to 25 Bulgarian and Turkish houses in each.

From Kasbéin to Velshin a long defile stretches for 4 hours between calcareous hills, about 200 feet high from the bed of the Paravati river, which runs in a narrow valley, averaging 200 yards in width.

At Velshin, 8 hours from Shumla, the main road divides: one branch striking off to Varna, nearly due E., and the other to Paravati, S.S.E., along the river of that name.

Madara, Kulefcha, and Paravati were destroyed during the war of 1828-29; the first two have been rebuilt, but Paravati, which formerly contained 1000 Turkish and 80 Bulgarian and Greek houses, is now reduced to a Christian village of 20 Greek and 200 Bulgarian houses. There is but little cultivation, for want of hands, on the whole route from Kasbéin to Paravati.

At a short distance E. of Kasbéin artificial excavations appear in the steep limestone rocks, resembling those described near Injekis At Paravati the remains of the fortifications, thrown up during the last war by order of General Kyprianos, viz. four redoubts on the heights and two in the town, connected by trenches, are still visible.

Saturday, October 23*rd*, 1847.—

From Paravati to Testaji-Koi,	40	Turkish and Bulgarian houses	2 hours.
,, Shukur Kopri			3 ,,
,, Avren,	60	Bulgarian houses	4 ,,
,, Varna			8½ ,,

From Paravati the highway to Varna leads along the northern shore of the lake of Devne, but the cart-road along the southern shore being of considerable importance, I reconnoitered it by the route leading through the plain, and nearly parallel to the course of the Paravati river to Testaji (2 hours), and thence in 1 hour

more to Shükür Köpri, or the Bridge of Thanks (over the same river), so called because travellers having passed the woods between Varna and Shükür Köpri, are supposed to return thanks to Allah for having escaped being plundered or murdered.

From this bridge a difficult ascending track leads, in 1 hour, through thick forest, chiefly oak, to Avren, a central point on the Liusum mountain ridge, whence roads branch off by Sultanler to Yovan Dervish and Aïvachik.

Though living in a fertile spot, on a rich soil, cleared in the forest for agricultural purposes, the Bulgarians of this hamlet had not rebuilt their houses since the war, but were living on in poor mud-plastered wicker-work hovels and huts, through fear of having their houses again destroyed in another war.

Men and women seemed otherwise to be well off, and many of the latter wore in this secluded retreat fine and tasteful silver armlets and wristbands.

From Avren the mountainous nature of the country nearly obliged us to turn back in order to reach the village of Yenibekje, on the western Devne lake. It is fordable during its whole length. One hour and a half having taken us to the borders of the eastern Devne lake (nearly opposite Buyuk Aladin), 3 hours more along its banks, through forest and brushwood, brought us to Varna.

Sunday, October 24th, 1847.—I spent this day in reconnoitring the environs of Varna, as far as Buyuk Aladin, viz.:—

Varna to Kadi-Koi	. . . . .	¾ hours.
,, Yenijé-Koi	. . . . .	1¼ ,,
,, Buyuk Aladin	. . . . .	3 ,,

This road, along the northern shore of the lake of Devne, is the lower or summer road to Paravati; the upper or winter road to the same place runs nearly parallel to it at ½ or ¾ of a mile's distance, making some windings on account of the higher undulations of the ground. Both roads start from the same gate in Varna, and reunite at some distance beyond Buyuk Aladin.

Close to Varna the direct high road to Silistria strikes off through the mountains, which run parallel to the Lake of Devne (*Devno*), and another road to Silistria through these same mountains branches off from the upper Paravati road, between and just above the villages of Kadi-Koi and Yenijé-Koi.

From Buyuk Aladin (N. of the Devne lake) a road leads in one hour to Yenibekje-Koi, on the southern banks of the lake, passing two mills on the principal branch of the Paravati river, which connects the western and eastern lakes of Devne, and inundates the marshy ground between them, to a greater or less extent, according to the dry or wet season. The main stream of

the river, and a lateral branch which falls into the eastern Devne lake just below the village of Buyuk Aladin, form an island, which is mentioned in the action between Alexander the Great and the Triballians in his march towards the Danube.

The Paravati River has its head-waters in the mountains N. of Shumla, and falls into the smaller or western lake of Devne, near the village of Yeni-bekje (on its southern shore), traverses the south-eastern angle of the lake, and flows in the dry season by two branches, and during the rainy months by various streamlets, through the low and marshy neck of land which divides the two lakes, into the larger or easternmost, whence it discharges itself by a broad stream into the Black Sea, along the foot of the southern walls of the fortress of Varna.

The distance from the eastern shore of the lake to the Black Sea is about half an English mile, and the breadth of land between the two lakes, according to the heights of the floods in the dry or wet season, from 1 mile to 1½ mile.

The Paravati River flows nearly parallel to the Hæmus and to the Danube; and considering that from Varna, as well as from Paravati, the distance to Silistria is computed at 24 hours, or 3 days' march, there can be no doubt but that the Paravati River is the Lyginos described by Arrian thus:—"distat id ab Istro, si quis Aemum versus proficiscatur, itinere tridui."*

From the description given by the historian, it is evident that he speaks of a river running in the same direction with the Danube at a distance of three days from it, and not falling *into* the Ister or Danube, as the Lyginos is represented to do by some authorities as well as by the great Austrian map, where this ancient river is made to fall into the Danube at Zibra Palanka, between Nikopolis and Viddin, opposite to some small islands.

It is this collateral circumstance of the existence of islands at the mouth of the river at Zibra Palanka which most likely has caused the error, for Arrian speaks of an *island* of the Lyginos† (*vide* the French translations of that author), whereas river *islands*, in this part of the country, are only to be found in the Danube.

To avoid this apparent difficulty the German translators have altogether omitted the passage referring to the *island*,‡ and say that after the action with the Thracians, which I have described as having taken place at the defiles of Boghaz or Haramdéré:—

"Alexander ascended the heights, advanced against the Triballians across the Hæmus, and arrived at the Lyginos, which is distant from the Danube three days' journey, in the direction of the Hæmus.

"Syrmus, the King of the Triballians, informed long before of Alexander's

* "Ἀπέχει δὲ οὗτος ἀπὸ τοῦ Ἴστρου ὡς ἴσθι τὸν Αἷμον ἰόντι σταθμοὺς τρεῖς."

† Arrian says nothing about an island in the Lyginos. The author has apparently been misled by the French translation.—W. J. H.

‡ Dr. Borheck, Frankfort-o.-M. Edit. 1790, and others.

expedition, had sent the women and the children of the Triballians to the Ister, ordering them to be conveyed across to one of the islands of the river. Its name is Peuke.* In this same island the Thracians, neighbours of the Triballians, had also taken refuge on the approach of Alexander, and Syrmus himself, with his own people, had also fled thither."

From the knowledge that I have now acquired by personal examination of the ground, I prefer following the *French* translators, who say :—

"Cependant un grand nombre de Triballiens fuit en arrière et se porte *vers une autre* ILE du fleuve qu'Alexandre avait abandonné la veille" (the Lyginos river, "unde Alexander pridie profectus erat—ποταμόν, ἔνθενδερ τῇ ὑστεραίᾳ ὁρμήθη Ἀλέξανδρος).

"Informé du détour celui-ci revient sur ses pas et surprend leur camp; les barbares en désordre se rallient dans un bois voisin du fleuve."

Arrian then goes on to relate how Alexander succeeded in drawing the Triballians out of this wood, how he defeated them in the open ground beyond it, and—

"they fled through the forest towards the river. Three thousand perished in the flight; few prisoners were made, because not only the thickness of the wood which lay before the river, but also the approaching night, impeded the pursuit on the part of the Macedonians.

"On the third day after this battle Alexander arrived at the Ister." †

From a careful inspection of the country, I am persuaded that the isthmus between the two lakes of Devne is the ground of Alexander's action. It is formed into an island by the two principal streams of the Paravati, or Lyginos river. The southern shore of the Lyginos is still covered by thick primæval forest, and although the northern bank, where the battle was fought, is now open ground, it bears evident marks of having been formerly covered with wood.

Arrian may now be read without omissions or transpositions, and I hold that I have shown in the annexed sketch, Alexander marched from "Amphipolis" (Emboli), leaving "Philippi" (Ruins of Filibé) and "Mount Orbelus" on his left, crossed the "Nesus" (Karasu), and, following the high road by the present Ferejik, Demotika, Kirk-kelesia, and Aïdos, arrived at the foot of Mount Hæmus, which he reached "on the tenth day."

Here he fought the action with "the Thracians" at Boghazdéré, or Haramdéré, forced those defiles, and crossed the Hæmus (Balkan) by the main road to Paravati "on the Lyginos."

From Paravati Alexander moved by the present high road towards Silistria, but, hearing of the retreat of the main body of the Triballians towards "the island of the river (Lyginos),‡ whence Alexander had departed the previous day," he counter-

* Near *Silistria*, according to Barbié du Bocage. *See* German translation of Arrian by Professor Tafel, Edit. Stuttgard, 1829.

† Arriani Expedit., lib. i., cap. 2, 3.

‡ "Ingens vero Triballorum multitudo per flumen ad aliam quandam insulam *in Istro* sitam sese contulerat, unde Alexander pridie solverat."—ED.

marched also, in search of the enemy, whom he met with and defeated on the grounds between the two lakes of Devne. Thence he arrived, "in 3 days," on the Danube (at Silistria), crossed that mighty river, defeated the Getæ,* repassed the Danube, and undertook his expedition against the Agriani and Pæoni.†

By referring to the annexed sketch, it will be seen that Alexander passed, in his march *on* Silistria, the Kamchik at Köpri-Koi, and the Lyginos at Paravati, at the same points chosen by Marshal Diebitch in his inverse operation *from* Silistria against the defiles of the Balkan, after the battle of Kulefcha and the capture of Silistria. Arrived at Köpri-Koi, the Russian army struck off to the E., and forced the passes of the Hæmus, as was done by Darius, because it was the plan of the Russians—as formerly in that of the Persians—to occupy first the "sea towns" before continuing their operations: Darius from S. to N., Marshal Diebitch from N. to S. Nature has so strongly marked the best amongst the many difficult passes of the Hæmus, that at the distance of thousands of years the three great commanders are found to have operated by the same lines.

It remains to be observed, that whilst the Getæ, who, in the time of the expedition of Darius against the Scythæ (Herod., lib. iv.), lived S. of the Danube, were found by Alexander already on the left or northern bank of the river (in the fertile plains of Wallachia); the Triballians, on the contrary, held the former territories of the Getæ, as far S.E. as Varna.

It was a short distance to the westward of the Turkish village of Buyuk Aladin that the action of Alexander ‡ and the Triballians was fought, and, returning from this hamlet to Varna, my guide pointed out the ground N. of the village of Yenijé-Koi as the scene of the great modern battle of the 10th of November, 1444.

Two tumuli (marked Y in my sketch) were pointed out to me

* Arriani Expedit., lib. i., cap. 1-5.

† According to Barbié du Bocage, near a place opposite Silistria, where now is the village of Kornizel.

‡ "Alexander, the son of Philip, in his campaign against the Thracians beyond Mount Hæmus, is said to have penetrated as far as this in an incursion into the country of the Triballi, and observed that they occupied the territory as far as the Danube and the island Peuce (Piezina), which is in it; and that the Getæ possessed the country beyond that river; he was, however, unable to pass into the island for want of a sufficient number of ships, and because Syrmus, the king of the Triballi, who had taken refuge in that place, resisted the undertaking; but Alexander crossed over into the country of the Getæ and took their city, after which he returned home in haste, carrying with him presents from those nations, and also from Syrmus." *See* Strabo, by Hamilton and Falconer, vol. i. p. 463.—*Again*, at p. 469. "Near the mouth of the Danube is the large island of Peuce. This the Bastarnæ possessed, and were hence called Peucini. There are also other islands much smaller, some above this, and others nearer the sea. The Danube has seven mouths: the largest is called the Sacred Mouth, the passage by which to Peuce is 120 stadia. At the lower part of this island Darius made his bridge."—ED.

by the denomination of Sanjak Tépé and Murad Tépé. They are about the centre of the line which Sultan Murad's army of 40,000 men must have occupied on the slightly undulating ground of one of the last spurs of the mountain ridge which runs nearly E. and W. parallel with the lakes of Devne.

Opposite to the Mussulman line of battle King Vladislav and the Great Hunyades had drawn up their army of about 15,000 men on another easy slope, now occupied on its southern point by the hamlet of Kadi-Koi. The Turks stood in their usual order of battle when fighting in Europe :* the troops of Rumili forming the right, the Janissaries the centre, and the troops of Anatoli the left wing. The right wing was secured by the lake of Devne; the centre was protected by a palisaded ditch, the lines of which are still traceable in some parts near the Sanjak and Murad Tépés; and the left wing rested on the mountains.

The extent of the Turkish position, from the lake to the foot of the mountains, is about 2 English miles, or 3400 yards.

On the other side, the left wing of the Hungarian army was safely flanked by the marshy stream of the lake of Devne; in the centre stood the choice troops, commanded by King Vladislav in person; and the right wing—towards the mountains, but evidently the weakest part of their order of battle—was reclined a little backwards in the direction of Varna.

The position of Kadi-Koi is of an extent of about 2200 yards. The tumulus, or the elevation, marked X, in the rear of their right wing, is, in all probability, the spot where the Hungarians had made their "wagenburg," or fortification of chariots.

The two armies were separated by a very shallow dip of the ground, which is dry, sandy, and well adapted for fighting and manœuvring. Hammer is evidently mistaken in calling this great action "the battle of the Swamps," for the only swamps near the field are the marshy borders of the lake of Devne, on which rested the right wing of the Turks and the left of the Hungarians.

Notwithstanding, or perhaps on account of, the inferiority of the Christians in numbers, Hunyades had decided to act offensively, and both his wings were for a time victorious, but the general onset was broken by the steady and valorous resistance of the Janissaries.

King Vladislav was killed in his impetuous attack on that body; an old Janissary, Khoja Hisr, cut off his head, and stuck it on a lance by the side of a pike, on which was attached the broken treaty of peace.

I consider the Murad Tépé to be the spot where Sultan Murad had ordered the lance with the treaty to be exposed to the sight of his indignant army, and where King Vladislav's head was

* In Asia, according to the old regulations, the Beglerbeg of Anatoli commanded the right wing, and the Beglerbeg of Rumili the left.

planted by its side. The Sanjak-Tépé is the neighbouring mount, where, according to the Turkish war custom, the great imperial standard was displayed. Hence the traditional appellation of the two tumuli.

Hellert's French translation of M. de Hammer's celebrated 'History of the Ottoman Empire' is enriched with a plan of the battle of Varna. The ground laid down is altogether fictitious; in the neighbourhood of Varna there are neither lakes, rivers, nor mountains, like those indicated in that sketch.

Monday, October 25th.—The modern fortifications of Varna, reconstructed since 1828-29, have not strengthened the place. On the contrary, the bastioned "enceinte" has been considerably extended, and although the lines may thus hold a larger garrison, the defences of the northern side have been brought several hundred yards nearer to the heights from whence they can be most effectively battered. The weakest point of the new fortress is now its north-eastern angle, the most exposed to a marine attack, as ships of war can approach it, and enfilade within about 700 yards.

The main attack of the Russians in 1828, against the old fortress, was from the N.; they had also a strong corps established S. of Varna. Their communication was kept up by the fords of the Paravati or Lyginos river (2 feet deep in summer, 3 feet in winter), between the two lakes of Devne (3 hours from Varna). On this point they had also a pontoon bridge, and, besides, an easy communication of 2½ to 3 miles by water for messengers in boats across the lake, beyond the immediate reach of the guns of the fortress.

Formerly a stone bridge was thrown over the Lyginos, near the fords, and close to the present mills between Buyuk Aladin and Yenibekje-Koi; but the inhabitants of the latter place purposely destroyed the bridge, in order that troops, Government messengers, and travellers might not be induced to go by their village to Paravati—a road nearer by about a quarter of an hour than the present highway by the northern shore of the upper lake of Devne.

The voluntary destruction of a stone bridge by the neighbouring villagers, with the view of obstructing and avoiding the daily and, in well regulated countries, most profitable, intercourse between such important places as Varna and Shumla (viâ Paravati) is the strongest testimony of the present misrule on the part of the Government in these provinces.

On the arrival of the Austrian steamer from Galatz we embarked, in the afternoon of the 25th of October, for Constantinople, and a pleasant run, with a smooth sea, brought us to the Bosphorus and Golden Horn early the next day.

III.—*Extracts from a Journal up the Koladyn River, Aracan, in* 1851. By Capt. S. R. Tickell, B.N.I.

Communicated through the Secretary.

Read April 23, 1853.

[The province of Aracan is divided into four districts:—1. Akyab (the principal one); 2. Aeng, or Kyuk-phu; 3. Ramree; and, 4. Thandowy. The whole province is governed by a commissioner, who exercises the powers and duties of a civil and sessions judge, and commissioner of revenue, together with a general superintendence over matters connected with the marine department in the province. Under this officer, and at the head of each district, is placed a principal assistant commissioner, who performs the functions of civil judge, magistrate, and collector of revenue within his jurisdiction. In the exercise of these duties the political assistant has to visit, during the cool and healthy part of the year, the interior of his district; and it was during a tour of this nature, made in 1850-51, that the notes and remarks on the scenery, topography, inhabitants and products of the principal river of the country were made, and are now offered to the Royal Geographical Society. The, at the time, irremediable want of proper instruments incapacitated the author from recording such data as to the heights of mountains, latitudes of places, temperature and humidity of the air, &c. as are essential to the completeness of a traveller's diary. The hill-people described are one of a great number of tribes inhabiting the vast ranges of the Himmalaya mountains and their offshoots, most of whom, from Assam northward and westward, have been already described, but nothing has been published yet, the author believes, on the mountaineers or aborigines of Aracan; and the following crude observations will, he trusts, fill up in some measure this hiatus in ethnology.—S. R. T.]

Akyab, Feb. 3rd, Monday.—Weighed at 7 A.M., in the H.C. schooner Petrel, with a fresh breeze from the N.E., and, after running large to clear the shipping above us, braced up on the larboard tack and stood across the estuary of the Koladyn, here about 5 miles wide. The cold north-easterly monsoon blowing freshly against a flowing spring-tide made a "bit of a sea," and we cracked on merrily, the waves sparkling with blue and silver, and sending their spray over the decks of our little craft. The view of the station and town of Akyab was exceedingly pretty. The bungālās of the residents peeping from the trees—the smooth, regularly-planned roads, avenued by noble casuarinas—the few white-washed "*pukka*" bridges and edifices—all sparkled cheerily in the sun; and even the interminable masses of mat huts and houses, composing the town and bazaar, assumed a gay air in the lovely morning. The beach was crowded with busy multitudes, occupied in the grand staple commerce of the place—loading, husking, piling, measuring, and packing rice. The mass of the crowd was composed of Chittagong coolies (who come in shiploads during the working season), but amongst them might be seen groups of other nations in their various costumes—Arabs, Madrassies, Malays, Javanese, Chinese, and Mongols, mixed with the "Mughs" (the

natives of Aracan); while, in more familiar garbs, English, Americans, French, Danes, Spaniards, and Dutch, might be seen strolling about or shouldering their way through the chattering crowds. Near the shore, and ranged in long lines, lay anchored ships of all the above nations, of every class and size from 800 tons downwards—from the taunt-sparred, clipping "Yankee" to the unwieldy Chinese junk; busily engaged in taking in rice from fleets of country boats around them: while between them and the shore passed and repassed small craft of every description—clumsy burs managed by Chittagong coolies, Aracanese canoes, Malay sampans, Chinese affairs, looking like huge troughs, and here and there the well-appointed quarter-boat of some European ship, with its clean white awning, bearing her master to his breakfast on shore. All was hurry-scurry, toil, and clamour.

The town of Akyab, viewed from the harbour, extends in a mass of mat houses, with a background of densely foliaged trees, for about 2½ miles, when it is bounded by the Charigia creek, though straggling clusters of buildings continue beyond, along the shore, which trends N.N.E. About midway the town is traversed by the Julliapara creek, which is smaller than the former, and passed by a substantial wooden bridge. Both are full of Burmese and Aracanese godoos, or native ships, boats, and canoes of every description; and the Charigia, which is about 100 yards broad, and very deep, admits ships of 300 tons for a mile or more within it. The mouths of these creeks are busy spots, being crowded with sheds for storing rice, and temporary wharfs, thronged with boats incessantly filling with freight for the shipping; and up them for a considerable distance may be seen a forest of masts of Burmese and Aracanese godoos, which chiefly bring timber from the interior, and here and there an ugly, mangy-looking Chittagong sloop, with its grotesque Anglo-Indian rigging, a fishing-net triced up to the gaff-peak, and a starveling crew of coolies. How these vessels manage to find their way from Chittagong, or preserve their existence in the most ordinary state of the sea in the bay, was matter to me of great musing and wonderment as we swept past the suburbs of the town. The country ships from Masulipatam, Coringa, and other ports on the Madras coast are of a somewhat better description; but still, with Gonzalo in the 'Tempest,' I would prefer "an acre of barren ground, long heath, brown furze—anything" to "a thousand furlongs of sea" in one of them.

North of the Charigia, houses continue thinly scattered, and patches of green grass and jungle begin to mingle with them along the low muddy shore, with tall dead trees ringed and decaying in places where clearings have been commenced; until the whole length of bank presents a line of unbroken jungle close down to the

water's edge, save where the ebb tide leaves a space of oozy mud between. The opposite or eastern side of the harbour is hemmed in by small rocky islets, with precipitous hills densely clothed in jungle, and with a steep, hard beach; some of the rocks crowning their summits start out in fanciful shapes, and one of them, "Tumble-down Dick"—a high slanting cone of sandstone projecting from a wooded ridge—is a well-known landmark in the estuary. Between these islands deep broad creeks afford safe inland passages to Kyuk-phu; and the N. of the harbour is bounded by Flat Island, a low tract of marshy jungle which divides the Koladyn into two broad streams, through which channels the tides rush with great strength, and, if the wind be fresh and contrary, a high rolling sea. Looking back to the S., low ridges of rocks, stretching out from the Bolongo Island, almost encircle the harbour, leaving a deep passage of about three-fourths of a mile in width for vessels entering or leaving; and from this reef rises Savage Island, a mass of steep rocks crowned by an excellent stone light-house, facing another smaller one built on the most southerly point of Akyab Island itself.

We passed Flat Island on its western side, avoiding the long shoal that extends like a tail from its southern extremity, and tacking from shore to shore, drifted rapidly up with the tide; the banks on either side being a monotonous line of jungle, though the country in the interior is entirely open and cultivated. About 4 miles up the channel we passed, to the W., a large creek, the Moungyn, which affords a passage to the Myú river, N.W. One or two rice sheds were observable on its banks; and in the early part of the season pariars put in here to load. Flat Island appears to be about 5 miles long; and, passing the head of it, we entered a channel of upwards of 2 miles broad, with a considerable sea rolling in the centre. Here we passed an antique looking bark going before the wind, and presently after a brig. The eastern shore continues low, covered with jungle, with here and there a fine open space peering through the trees; but, on the western side, at about twenty miles from Akyab, a ridge of wooded hills runs ½ a mile inland parallel to the shore, and on a spur of these, projecting towards the river, is a very large ancient *Jedi*, or sacred monument of the Budhists, overlooking the village of Ourytung, off which, the tide failing us, we anchored.

The view from the deck of the Petrel here was very pretty: to our right, or E., rolled the broad stream of the Koladyn, now smooth in the calm air of evening. Ahead lay an extensive island meadow, dividing the main river from the Yeokhyung, a broad creek that came smoothly down from the N.N.W., grey with the shadows of overhanging hills that swept along the western shore and rose sharply defined against the fading sky. On our left hand,

"stricken in years," and in the mute majesty of decay, stood the lone Jedi; and past it, swept a little stream, where lights began to twinkle from boats along the bank; and above it a path winded away to the village of Ourytung, concealed in trees. Astern, the Koladyn rolled on, its broad waters mingling far off with the harbour, and to the S.E. bounded by ranges of purple hills.

A jedi I have called a Budhist sacred monument. It can scarcely be called a temple, for it is solid, having no interior receptacle, shrine, or apartment. It is in fact a solid cupola, truncated at the base, which springs sheer from the ground, and with divers convolutions, as if turned in a lathe, ends in a pinnacle, surmounted by iron wire-work, representing the royal fringed Burmese "tee," or state umbrella; the terminating spire of which is not unfrequently crowned with an old soda-water bottle.

Before night set in, observing an alligator asleep on a mud flat near some rocks about $\frac{1}{4}$ of a mile up the stream, I set off in the jolly-boat, and after a long pull gained the shelter of the rocks, and, letting the boat drop silently past him within 30 or 40 yards, shot him through the neck, so that he merely opened his mouth, but could not stir from the spot. The boat's crew jumped on shore, up to their thighs in mud, and with a little trouble (giving him an oar to mumble, at which he snapped savagely), tied up his muzzle, and dragged him into the boat. He was about 9 feet long. The Clashies secured his fangs, and the Mughs his body, of which they made some dainty dish. The alligators here are a distinct species from the "mugger," "koombïr," or "boach," of Bengal; they are longer in proportion, with a slenderer muzzle, and, like the "gavial" of the Ganges, appear adapted for more rapid swimming. It is notable that in Bengal the largest alligators are found nearest the sea: here it appears to be the reverse; for they tell me the largest are high up the Koladyn, where they frequently seize and devour both children and adults.

At 8 P.M. we weighed, and, in a light air, partly sailed and partly swept up the creek to the N.N.W., the Yeokhyung, anchoring about 1 mile from its mouth, off Prongrhé.

4th, Tuesday.—Weighed at 8 A.M., a bright clear morning, and tacked up the Yeokhyung with a strong northerly breeze. The keonk, or tuhsildar, of Prongrhé, in the circle (or ké-wyn) of Yeogwyn, came on board to pay his respects, and brought his son, a handsome lad of fourteen or fifteen years. The creek is on an average 200 yards wide, and very winding, with much cultivation on both sides, and pawn gardens at the foot of the hills. These, after bordering the creek for 2 miles, trend off inland to N.W., and disclose other parallel ranges further back; they are densely clothed in hill bamboo and other jungle, and very steep, but not above 500 feet in height. I have been joined by my revenue

amla in their boats, and, as we pass each ké-wyn or circle, its keonk, or head man, comes on board, and we form quite a flotilla.

The Aracanese have a custom of leaving the jungle growing on the banks of the creeks and rivers in a hedge or border, sometimes 50 to 100 yards deep; so that the traveller, being unable to see inland, fancies he is traversing interminable forests, when he is probably in a champaign country. The object of this border is to prevent drift-wood being carried during high floods into their fields; but it appears to me a useless custom, and it certainly disfigures the country. Where Chittagongs reside the land is cleared to the water's edge, and the sight of the open meadows is quite cheering to the eye.

The stream being narrow, we tacked every five minutes, and once got into the trees on the bank, but were soon off again. Three hours' sail brought us past Chyn-tan, a small village on the bank, dignified by two little Jedis. The villagers seem very busy, threshing and piling their rice on the shore, and scarcely leaving off to stare at us as we pass. This rice is soon purchased by duláls (native brokers) for the shipping, or the Akyab market.

The tide failed us at the village of Subong, on the E. bank, where we anchored, and I had kucherry, returning with the ebb to the mouth of the creek before night-fall.

In these wooded nalas, when the ebb leaves the mud exposed, the banks are often visited by numbers of monkeys (Cercopithecus carbonarius), the "myuk-tungá," or fishing monkey of the Aracanese, who grope about the mud for worms, shell-fish, or stranded shrimps. They are amusing fellows, and readily tamed when caught young; but the males get morose with age, and bite severely, having canine teeth as large as the fangs of a fox-hound. They swim well: one that I had wounded in the Bolongo Island, in 1847, escaped out of our boat (having charged at and nearly driven us all overboard), and took to swimming and diving so dexterously that we were long in recapturing him. I might have shot several to-day, but forbore.

Among the hills described a little while back, one of the inner ranges, running N.W., ends in a very steep truncated summit. It is the highest hill in the alluvium of the Akyab district, and, by native report, quite insurmountable. It is called the Beygnara-tung (or hill of five hundred ducks); but the origin of such a singular name I could not discover. There is said to be a tank on the top (perhaps for the ducks), and that in former years a nāt or spirit inhabited the hill, who fulfilled the wishes of all such pilgrims as visited her shrine, whether for riches, long life, or posterity. The tank also on the summit, generally said to be dug by præter-human hands, is a feature common to nearly all the remarkable hills in Singthum, Chota Nagpur, &c.

Before nightfall we anchored at our station of yesterday, below Yeogwyn Island. The conflux of the two streams is dangerous for small boats at half tides during the springs, as strong whirlpools form in such spots sufficient to engulph a light canoe.

The channel of the Koladyn before us being shallow, we waited till 9 P.M., when the flow had been running about half an hour, and then weighed, tacking up with a light north-easterly air. The young moon had set early behind the hills, but it was a brilliant starlight night. We made for the easterly shore, where we had 3 fathoms, but the channel was very narrow, and in spite of every precaution, sending the jolly-boat ahead to sound, we twice shoaled to ½ a fathom, and the second time grounded. This was about midnight, and the crew, who had been working hard all day, let go the anchor, to wait for better times; but, on my insisting upon it, they got a grapnel off in the jolly-boat, and throwing it into deep water astern of us, hove upon it, and a light air helping us, we got off. This reach of the Koladyn, which I calculate at 25 to 30 miles from Akyab, would require great precaution, and daylight, to ensure the safe passage of larger vessels. Beyond it the water continues of great depth for about 50 miles.

5th, Wednesday.—At about 3 A.M. we anchored off the village of Kuddawa, on the E. shore, being unable to proceed on account of a dense fog. I was upon deck at about 7 A.M., a cold northerly breeze was clearing off the mist, which at 9 A.M. lifted, and the sun shone out upon much the same kind of country as heretofore. The Koladyn narrowed to about 600 yards; the E. shore well cultivated, but fringed with jungle, and villages at every mile or two apart. The opposite side is the E. bank of Yeogwyn Island (which we ran along yesterday), and is chiefly jungle, with the ground taree-palm in thick groves, affording a boundless supply to the Aracanese of the drink they love. The whole of the day was occupied in revenue business; and the poop of the Petrel, with an awning above, made the pleasantest kucherry I had ever worked in.

At about 2 P.M. we anchored off the pleasant village of Rungjwyn.

About 8 P.M. we weighed again, sweeping up, for there was little or no wind, but were obliged to anchor about midnight, as the fog settled down so thick we could scarcely see to the jib-boom end. Just before anchoring we passed a pariar brig at anchor.

6th, Thursday.—Ookwye, our anchoring place. The country immediately in advance begins perceptibly to improve, the banks to heighten, and wide meadows to relieve the monotony of bush and jungle. We weighed at 9 A.M., with a cold bracing wind that sent us flying through the water. The country here rises on

either shore, losing the swampy appearance of Lower Aracan; and the view, as we tacked up, was lovely in the extreme. On either side villages, of a far superior description to any yet seen, lay clustered on high banks, amid groves of plantains, mangoes, guavas, and jacks; and in front of us extended ranges of purple hills, from which stood out in relief a beautiful group, covered with green jungle, and crowned with a jedi (the Kyuktau), beneath which the river winds, sweeping in a semicircle to the W. We anchored late in the afternoon, in a very populous country, thickly studded with villages all the way from Apawa, a town on the last reach, about 8 miles down, where we passed two or three Madras brigs at anchor.

Shwélyn is a very large village, the houses peering through groves of plantains, mangoes, and jack-trees, on a bank full 20 feet above high water. The cotton-tree ("seemul") is here common: and I heard the voices of several Indian birds, which are not found, or but rarely so, near the sea; such as the coèl, the wandering cuckoo (Cuculus fugax), and the "oogoos" (Haliætus macei), which at Akyab is replaced by the Haliætus blagrus.

The western shore is rather lower, entirely open, and cultivated; and opposite us lay the village of Poona-roa (the Bramin's village), in which a colony of Bramins had for ages settled. Above this extended, as far as the eye could reach, the villages of Frabong, Tongbo, Chagong, Oukpysé, Atápysé, Kyuktau, Meedan, and Wangewdung; and on our side Kanynroa, Sadagri, Gnwélyn, Shwélyn, Sawungyn, Prỹntong, and the Kyuktau jedi. The population here is almost entirely of that neutral class called Mugh Musulmans, who have become completely naturalized in the country, speaking indiscriminately Aracanese or Bengali to each other. Their first immigration from Chittagong (or Dhaka?) is of so ancient a date that they could give me no information on the subject.

Towards evening I went on shore in a large boat belonging to my quondam teacher and ally, Mungola. His boat was a good specimen of a Burmese godoo, but is not of a class much used here; the ordinary boats being very like the choppered dingies of Bengal. Mungola's boat rowed ten oars, and went very fast through the water. The Aracanese are much better rowers than the Hindustanees, who lose much mechanical force by dipping their oars close to the boat's side, instead of at right angles. The stroke oar in these boats is generally a Burmese, and often a "loo-byak," or wag, well versed in songs and witty sayings, wherewith to beguile labour. Every stroke is preceded by a short sentence said or sung, and the stroke itself accompanied by a chorus from the other rowers. The words sounded to me a constant repetition of "Wélỹkcho"—(chorus) Wélyk — every time

increasing in energy and rapidity until the rowers seemed crazy, dashing the water most disagreeably about, and making the boat foam along, until, at a general shout, there was a temporary pause or lull. We landed at a good ghaut, a path winding up the steep bank, and walked into the village of Shwélyn aforesaid.

The houses and homesteads are large and comfortable, and irregularly scattered amid railed-off enclosures of plantains, mangoes, jacks, and guava-trees. It was harvest-time, and all the villagers as busy as they could be. At every hundred yards were piles of rice in stalk and heaps of grain, which was being threshed out in the ancient Indian fashion by buffaloes, of which I saw great numbers. The people are all Musulmans, and dress nearly the same as the genuine Mughs, but are very distinct in countenance, having more or less of the disagreeable dull look of the Chittagong. The elders, moreover, wear beards—a rare sight amongst true Aracanese—and all cut their hair, which a Mugh cherishes like any Samson. The village lay along the river side; and inland spread a wide extent of rice, interspersed with scraps of nul or reed jungle. There were a few small tanks scattered about, and some enclosed patches of mïrchaies (Chili pepper), onions, and banguns, which reminded me of the pretty Koormee villages in Chota Nagpur. From the houses we struck inland across the fields for about one mile and a half, and then skirted a low range of wooded hills, from whence, according to our guide, deer and pea-fowl sallied forth of an evening. We came across numerous traces of elephants, which resort to the rice-fields from the jungle to the N.E., in the rains, and cause great mischief to the crops.

7th, Friday.—A heavy driving fog in the morning, cleared off about 8 A.M. The fresh-water mullets here are very inferior in flavour to the delicious fish about Patna and Bhagulpur.

As evening closed in my attention was attracted by singular notes from the trees, "Koo, koo, koo—kukiak, kukiak, kukiak," which I at first supposed to proceed from some species of small owl (Athene), but on closer investigation I discovered the sounds to belong to a crepuscular species of squirrel.

On my way back to the Petrel I passed a singular pigeon-house-looking edifice, on piles leaning over the river's bank, and was informed it was intended as a place for the accouchement of women newly arrived from other villages. If a man and his wife immigrate from another town, she will not be allowed by the villagers to be confined in the village, but must retire to this singular lying-in hospital. This interdiction is taken off after the birth of the first child.

8th, Saturday.—We went in the direction taken the day before

yesterday, but, passing through the first low range of hills, came upon large plains of grass and reeds, scattered over with broken chains of small hills covered with tree and thicket jungle. The beaters in line swept these little hills, while the hunters ran on ahead to intercept the game; by which means I was enabled to bag a couple of kâkur, or barking deer (Cervus muntjac), the only things I saw.

It is melancholy to see such wide tracts of rich land lying waste for want of hands to cultivate it. These plains extend about 8 or 10 miles inland, and terminate in boundless forests and ranges of low hills increasing in height up to the great chain of the Yooma

and of great depth. Progressing for about 4 miles, we anchored off a steep landing-place, shaded with majestic timber, at the village of Kangroa, in the circle of Rala. The water was 12 fathoms deep, in a nearly circular basin.

The tide flows here not only perceptibly, and for the usual duration of six hours, but, they tell me, with considerable strength at times, and yet there is not a vestige of brackishness in the water, which is so pure as barely to require filtering.

10*th*, *Monday*.—After breakfast went ashore and took a view of the place. The houses are large, in groups of three and four, enclosed in bamboo palisades, with narrow paths winding between them, and all buried in a dense grove of mangoes, jacks, betel-nuts, guavas, plantains, cocoa-nuts, and pine-apples, not to speak of jungle and weeds of every description. Deep ravines intersected the village, opening into the river and spanned by trunks of trees, over which I walked circumspectly. Round the skirts of the village were enclosures of onions, banguns, chilies, and dhunnia; and a road for carts ran along the inland margin of the village, about 300 yards from the river. The inhabitants are all Mugh Musulmâns, a most ill-looking set, with heavy Jewish features, and huge turbans. The women generally made themselves scarce, peeping stealthily from behind enclosures. Some were rather good looking; but flat noses, blubber lips, and goggling eyes appeared to predominate. The children were very numerous, but thin and squalid, with protuberant bellies.

At about 11 we started off in quest of sport: but the people had no idea of what I wanted; they took me over wastes of grass-land, and at last into such a mass or region of reeds ("nul bun," as they call it), that, what with the heat of the sun and the want of air in these stagnating beds of vegetation, I thought I should have fainted, and, after a struggle of about half a mile, made the best of my way out, and sat down at the edge of the brake to watch their mode of sport. Their plan is to surround a portion of this horrible "nul bun" with large nets, near which (inside) a number of them take post with clubs. A party then goes into the reeds, when they begin yelling, and if an animal bolts into the net he is soon pounded to death with the clubs. If a pig be started, the beaters, who are all Musulmâns, keep quiet, and give him *carte blanche* to go where he lists. The dung and footmarks of elephants, some quite fresh, were numerous everywhere.

In a remote part of the plain, by the unfrequented banks of the river, we came upon a statue of Gaudama, in his usual squatting posture, of colossal size, for he was full 7 feet high; and here had he remained, solemn and alone, so long that a tree had grown up behind him, and cast its gnarled roots round his body: while, in more recent times, irreverent cow-herd boys had chiselled the nose

off his benign countenance, and avaricious hands dug a pit beneath him, searching for supposed buried treasure.

Towards evening I crossed the river, and had some jungle-fowl shooting. The country on the western side is prettier, being laid out in park-like patches of grass and scattered trees, between rounded wooded hills. The other side, as I have said, consists of wide plains of grass and reeds, bordered by the forest, with a horizon of hills rising over hills, and bounded by the great Yeomadung.

11*th*, *Tuesday*.—Held kucherry all day, chiefly hearing petitions. Matrimonial quarrels were abundant, and almost impossible to settle. In Bengal, where no respectable native will drag his wife's name into court, these vexatious cases seldom occur; but here they are the commonest of all, particularly amongst Mugh Musulmâns.

At 8 P.M., after dinner, I packed off my servants and some necessaries to Mahamunni, a place about 8 miles inland to the south-eastward, where I wished to see a renowned pagoda.

12*th*, *Wednesday*.—Having started off my bedding at 6 A.M., I soon after followed with my usual party. Our track lay due E., and the village was soon cleared, as it is of no breadth, though of considerable length along the river. The cultivation also extends barely above a mile inland. Why the people do not till the soil further in I could not understand: it appeared to me rich and good; but they say it is not good for rice, but is a glorious country for indigo, which I heartily hope some day to see put to the proof. For 3 miles our way led through the "nul bun," or reed jungle, and, though the morning was cloudy and cool, the air in this dense gigantic herbage was hot and stagnant; and the marks of elephants so recent, that our guides occasionally lifted up their voices and went along bellowing, in which I felt strongly inclined to join, being naturally anxious to keep these brutes at a distance. Once or twice we came upon scantily cleared patches of cotton (very poor and short in staple) and of plantains, amongst which the elephants had evidently made themselves at home. The nul jungle became latterly scattered with trees, and at length terminated suddenly in a group of some few houses, belonging to hill people of the Kumooi tribe. As we entered the hamlet a man sallied out of his house and made straight for me, holding out two sticks, as if inviting me to a fair stand-up fight; but, on coming close, the sticks proved to be sugar-canes, presented to me by way of welcome; and these, together with a basket of rotten eggs, I most graciously received, and sitting myself down on a "khiang" (stool) in the midst of the houses, had a long chat with him and others assembled. After a little coaxing, their wives and daughters were also induced to come near and squat down, with

their children. They were very hideous, light in complexion, with narrow foreheads, and pigs' eyes. The women were naked all but a short kilt not reaching to the knee, and round their loins was wound a species of cord bound with copper wire. They wore beads round their necks, and rolls of red cloth thrust through their ears, the flaps of which were enormously distended. One peculiarly frightful old woman, with a small reed-pipe, came to have a smoke close beside me. They all appeared sickly, with enlarged abdomens; but they told me fever was not common amongst them. They never resort to medicine, but, like the Koles of Singbhoom, perform sacrifices when ill. The name of the village is Powktau, and it is situated on the W. bank of a narrow, deep nala, affected by the tides, the Thérékhyung.

They had prepared a capital conveyance for me for the rest of my journey (which led down the nala), by lashing together a couple of canoes with a strong mat platform between, which held a chair comfortably; and on this I and some of our suite, with my guns, &c., embarked. There were four paddlers, a man at the head, and one at the stern, of each canoe; and we went along at a good pace, in a S.E. direction, through a vast forest, in which I recognised the sirris-tree (Mimosa seris), growing to an immense height, as at Oorkia in Singbhoom. Here and there an enormous species of bur, in itself a grove, over-shadowed the water, affording gloomy lurking-places for the huge alligators that infested this stream. I did not remark any rare birds, nor any mammals, save a few of the common Bengal bundur (Circocebus inuus). Marks of elephants were numerous. After a paddle of about 3 miles we landed at the little hamlet of Charoámá, which is a collection of small Mugh bunnia's huts, and charas or seraies, both for the accommodation of the numerous pilgrims who resort to the temple of Mahamunnee, which is about three-quarters of a mile to the eastward, crossing another nala by a stout wooden bridge, and pursuing a paved road, made ages ago by some of the Aracan rajas, and still in good condition. A small nala ran along the left hand going, and on both sides were dense masses of nul and forest trees. Near the temple is another group of bunnia's houses; and, under the large peepul tree in the centre, a chara, or seraie, for travellers. Passing through these we arrived at the outer wall of the court-yard enclosing the temple, or rather at a covered way leading to it, and which is entered by several side doorways. This covered way leads through three encircling walls, and up several stone steps, to the platform of the temple; the walls on both sides being perforated to hold lamps. The temple is on a mound or low hill, and is approached by similar entrances at each face, the principal one being towards the E. The spaces between the three surrounding walls had in former years been laid out as gardens,

the remains of which were still visible. The temple itself was a heavy solid dome, with a short turret or minaret at each corner; the base hollowed into a small domed chamber, entered by an arched doorway in the E. face. In former years it had been surmounted and surrounded by a huge wooden pagoda, which was destroyed by fire, the roots of monstrous posts being still visible. In more recent times, a zealous Budhist, Ongiaw Soodaw, recommenced the outer structure; but he died, and no one has since completed the work. A bigoted Keonk now and then contributes a few timbers towards the edifice, and they are thus added by twos and threes; but there appears very little probability of the work being ever finished.

The Budhists are not surly and opposed to "infidels" visiting their sacred edifices, as the Bramins of India are, and not the least objection was offered to my walking into the sanctum sanctorum, where I beheld three gilt figures of Gaudama and his attendants, squatted on a raised stone platform, which a shorn phoongee (or priest) was sweeping, and on the front ledge of which were placed offerings, flowers and leaves in earthen vases, a gigantic pair of Chinese-looking slippers, and other matters. These were the contributions of a keonk, who was there on a pilgrimage, and who had moreover clad the statues in robes of orange and gilding, and hung outside the doorway long cylindrical streamers of muslin and painted paper. These offerings remain untouched until the next votary arrives with his gifts, when they are unceremoniously pitched away to make room for the new donations; and, in fact, I found the jungle between the walls on the eastern face full of all sorts of trumpery which had thus "had their day." The phoongee has his offerings separate: there are but two officiating at Mahamunnee, at which I was surprised, remembering what hosts of Bramins fatten in similar places in Hindustan, and how they fight and litigate for the "spolia opima." But I am told that, in spite of its being a place of such estimation and resort, Mahamunnee is not much coveted as a "cure" by the yellow robed sacerdotals, who find more gain at Akyab itself. There are eight small tanks, two to each face, round the enclosure; and at the W. portal, under the archway, is a "wishing wall," which has become covered with numerous perforations from the forefingers of the wishers.

This pagoda was, I was told, built in the year 144 of the Aracan era, or 783 years ago, in the third year of Gaudama's advent, and at his desire, by Chanda Sooria, raja of Aracan, who also founded the city of Dyniawuddee, close to and S.W. of the temple. The brick remains of this are still visible. One hundred and one rajas of different countries are said to have contributed to finish the stone temple (Koopotó) and the wooden pagoda

(Seyin). The pagoda was burnt down several years after, in the reign of Apéa, who held his court in old Aracan (Myoukoo), and who rebuilt it, but it was burnt down again when Aracan was conquered by the Burmese in 1784 A.D.; and the original golden image of Gaudama (made also by Chanda Sooria) was taken away by Nagara Singa, their king. This image was replaced by a smaller one brought from Sangyaw, a place near Mahamunnee; and Kyawten, "mengyee" or governor of Aracan, rebuilt the pagoda in 1164, Aracan era. It was burnt down by the hill people a short time before the war between the British and Burmese, and again rebuilt by Nyndong Keonk of Peegwyn; it was a fourth time and finally burnt down during the Burmese war; and, after the attempt at rebuilding made by Ongiaw Sooday, already alluded to, it has remained to the present time.

I passed the day and night comfortably enough in the chara at Charoámá, being only inconvenienced at times by the bouncing mat-floor, peculiar to all the native houses in the country, which jerks up and down on the slightest movement, so as to disturb any occupation, even that of eating! While holding kucherry to-day a great many "Mroes" from the adjacent villages came in. They are a pleasing, innocent set of people; and one of their toungmongs, or chiefs, has accompanied me from Kangroá.

13*th*, *Thursday.*—Moved to-day into the hamlet close to the temple: and in the evening, after closing kucherry, set off on a shooting expedition, but without success. We went in a south-easterly direction, partly along the raised road before mentioned, and through a forest of high timber; crossing several narrow, deep nalas, on slippery trunks of trees or on crazy bamboo bridges, which creaked under my weight in the most uncomfortable manner. Four miles of this brought us to Chating's village, Poodzey Khyoungroá; but, instead of entering this, we turned off to the right (or S.) at their burial-ground, which is a curious kind of cemetery. These people burn their dead, and place the bones and ashes in little toy-houses adorned with flags; carefully removing and carrying the relics from place to place, as they shift their habitations. Two forked sticks are placed in honour of the Nāt, or tutelary spirit of the spot. These sticks, after elaborate carving and painting with black marks, are sanctified by sacrificing buffaloes to them, and then placed in the spot to consecrate it for their dead: the Nāt being supposed to take up her abode in the tree against which they are propped. A little stream ran under the spot, and a steep wooded hill rose immediately behind it.

The Carpophaga sylvatica and Harpactes erythrocephalus seemed pretty common; and Megalaima lathami, called by the Aracanese, from its notes, "Pookoung," was heard everywhere. The jaral tree is very common and large in these woods: and a

most elegant parasite drooped from the limbs of several trees of different kinds. The flowers are placed alternately on a hanging stalk of about two feet in length, and are about twenty in number. I remarked no other flowers, save a yellow Hibiscus, and a rose-coloured one on the banks of nalas, from which the Aracanese make paper. We were surrounded by low rounded hills, of apparently decayed sandstone, in some parts very thinly wooded. Wherever the ground was flat and low it was choked with masses of "nul."

On our way back we entered Chating's village. It consisted of about a dozen houses, pretty closely packed on a steep round hill. They are very neatly built, entirely of bamboos, laid close together for the sides and floorings. The roof is covered with bamboos split open and beat into flat sheets: the floors are raised from six to nine feet off the ground. A woman was weaving near her door a capital thick warm cloak, of white, blue, and red cotton, very tastefully patterned. We got back at about 8 P.M., a bright moon lighting us through the forest and over the crazy bridges, the crossing of which was not rendered more facile by the absence of daylight.

14*th*, *Friday*.—Paid another visit to the temple. Opposite the doorway a phoongee was expounding to some devout listeners, who at the end of each sentence said, "Sat'ho" or "Hokré," which is about equivalent to our "Hear, hear."

A pair of the large horned fishing owl (Ketupa Leschenaultii) frequents the temple, and their loud harsh voices, which I had never before heard, startled me: the cry is quite unlike the muffled booming of Bubo bengalensis, being a hoarse call, "Keock!—kukkukuk—krȳk! krȳk! krȳk!" Athene scutellata is common in these woods also, and during the moon-lit night its soft dissyllabic call, "Mo-oomp," was heard throughout the forest.

After breakfasting at the chara I despatched my traps and servants off to the Petrel, and had a long talk to the Mroes (Mungola being interpreter), and took likenesses of several. While so employed Chating brought in two lads of the genuine Areng Khyangs, or wild hill men, who dwell in the far mountains of the Lemro nala. Their homes had been harried by some neighbouring tribe, and their wives and children carried off into slavery. They themselves escaped with difficulty, and had now determined on settling in Chating's village. More complete savages I have never seen. One was a handsome lad, but downcast and scowling; the other not so good looking. Their complexion was fairer than that of the Aracanese or Mroes: and they appeared utterly indifferent to the exposure of their persons, so that the little narrow cloth they wore might have been dispensed with altogether.

Both had a wooden shield, covered with metal resembling silver, on the left fore-arm, which by the constant pressure is whitened and depressed (as the finger from a ring). They carry these shields from childhood (gradually increasing the size), and are good archers. Their bows and arrows they had unfortunately left in their village. The shorter lad had a rude dagger stuck in his girdle, with a silver plated handle, adorned with deer skin, and a bunch of hog's bristles at the end, dyed red. They spoke an entirely different language from the Mroes, and Chating was the only one present who could interpret to them. I could not induce him of the dagger to part with his weapon.

At about 4 P.M. we set off on our return to the Petrel, which we reached about seven o'clock, returning up the same nala, the Thérékhyung, and resting at Powktau till it got cool. At 8 P.M. we weighed, and swept up with the tide in bright moonlight.

15th, Saturday.—The river still retains great depth, and is about 350 yards broad; but is quite shut in by hills, which gradually increase in height, and are in many parts cleared and cultivated with cotton, sugar, and tobacco; the last, however, being confined to the lower parts, close to the water's edge. The cotton was nearly all cleared off the ground, and in many places heaps of it, packed in baskets, were stored on the river banks ready to be collected on board canoes to be taken down to Rulla and other large towns nearer Akyab, to which place it is finally conveyed in larger native boats. The sugar-cane was ripe, and in many places cut. Some that I saw was of very fine quality, large and full of juice. The tobacco was backward, and I was informed had been a bad crop. It is planted irregularly, all along the margin of the river; the soil being carefully weeded and pulverized for a breadth of about 20 feet from the water's edge. These beds are very steep, and difficult to walk along, the fine light soil yielding to the feet, and threatening to shoot the intruder at a tangent into the river. I remarked large groves of plantains along the shores and on the plateaus leading to the foot of the hills. Clusters of wretched wigwams were scattered here and there, with an occasional solitary mechân for the purpose of guarding the sugar-cane from pigs.

We anchored in a wood-girt and rather narrow part of the stream, a little below the village of Moyntung, where the keonk of this circle resides, and which is the sole settled village for many miles; all the others being mere temporary hamlets, for these wild Mroes and Koomoois seldom remain above two years in one spot.

16th, Sunday.—At 1 A.M. weighed, and swept and partly sailed up to off the t'hana, where we anchored. The scenery here is

much the same, the river being girt in by steep banks buried under impenetrable masses of bamboo and nul jungle. The vicinity of villages is generally known by the ghâts on the river side, and these are conspicuous by bamboo enclosures, which fence in a small portion of the river where the inhabitants can draw water secure from alligators, which are said to abound here, though I have not seen one since we left Oorytung. A little steep path wound up to the plateau, on which are one or two charas, the t'hana, and the huts for the sepoys of the Aracan battalion, twenty of whom, under a havildar, are posted here as a protection from the inroads of the savage tribes who dwell further in the hills to the N. and N.E. of this place.

In the afternoon I went on shore, and perching myself on a stool in one of the charas aforesaid, held a levee of all the Mroes assembled there from the Peekhyung and other neighbouring nalas. The head man of each little hamlet invariably presents a little basket of eggs, a fowl or two, or a bunch of plantains. I found it rather difficult to observe strictly the rules in force against taking "nuzzers" on these occasions. Rejecting their little presents in toto would be amongst these savage people a mark of hostility or ill-will; so I kept the eggs and returned the poultry.

An old Mroe, who had acquired great celebrity by slaying a tiger in single combat with his spear, was here. The tiger of Aracan is about equal in size and strength to the larger leopard or panther of Central India; but occasionally, I am told, a large specimen is met with. The old man wore the animal's tooth suspended to his neck as a voucher, and was moreover adorned with a crest or topknot of the long tail-feathers of the Edolius retifer (the bhring raj of Central India, or n'hèt dau of the Aracanese), with which he most unceremoniously swept the faces of such as sat immediately behind him. He was a perfect savage in manner, uttering nothing but an acquiescent grunt when addressed; and, after sitting as long as it suited him, he got up and strode away, leisurely scratching himself wherever it suited him so to do.

17*th*, *Monday*.—The man who guided the military party which attacked the village of Akhoung in 1848 was murdered a few days ago by one of the inhabitants of the latter, and the daroga of this t'hana, who had been out endeavouring to effect his capture, returned this morning, *re infectâ*. The Akhoung people, it appears, have now withdrawn themselves further into their fastnesses, and entirely ceased their former occasional friendly intercourse with the Mroes of the Meekhyoung; nor will they depute any of their number to a conference with me. I shall, however, try what can be done to induce them, and the Khoons from beyond them also, to come in. By twos and threes, the weakest among the Arèngs, or furthest hill people, are flying from their moun-

tains, and taking refuge with the Peekhyoung and Meekhyoung villages; which is a good thing, as it gradually increases the number of the more civilised nomads. Twenty to-day announced their having settled within the last few months in the Peekhyoung. The petitions of these people are whimsical enough. One man this day applied for the restitution of his sister, and of a brass talee or dish, taken from him by another tribe during the Burmese war! I promised to inquire after the sister, dead or alive; but advised him to think no more of the talee, as it probably had a hole in it by this time. Whereupon there was a chorus of laughter, in which the petitioner quite contentedly joined.

After an hour or two passed in this kind of durbar (held in the chara) I went on board Mungola's boat with the Meekhyoung keonk to the village of the latter. The Meekhyoung is about 100 yards broad at its junction with the Koladyn, close to our anchoring place. It comes winding down from a north-easterly direction, its deep waters hemmed in with bluff hills, many of which were cleared for cultivation, and many covered with dead bamboos, felled and dried preparatory to burning. We passed four or five clusters of houses, and much tobacco cultivation; and, after a row of about 5 miles, landed at Khyoungooproá; the keonk's village, into which I mounted, scrambling up a steep ghât 50 or 60 feet high. The villagers are a little tamer than elsewhere, from the occasional residence amongst them of an American missionary, who has converted the keonk and some few others. The children, and such of the men as were at home, came and sat by me while I sketched a view of the spot; but the women I observe always keep aloof. One fine girl I remarked, about fifteen, and very fair: her face was pleasing, but the fashion many of them have of plucking out the eyebrows (and which this young lady had followed) gives the people a vacant, gull-like look. They brought me a Lemro bow to look at—not a very formidable weapon, for on drawing it, before the string reached my ear, it unluckily broke in two. We returned to the Petrel at nightfall.

Some of the Mroe villages are not only picturesque, but exceedingly snug and comfortable. One that I passed through yesterday, consisting of about ten well-built houses, had each dwelling stocked below the elevated floor with a piggery, cow-house, or hen-roost, and large golas of grain; the whole being enclosed in a neat wicker-worked bamboo stockade, about 20 feet high, entered by little wicket doors. The place was alive with children and women, and a few men, all busily employed. I remarked several of the sacrificing-posts before described.

18*th, Tuesday.*—Swept up with the tide, about 3 miles, to Rooproá, a large village of Mughs, where my people got supplies. The inhabitants are Aracanese, of a sect or tribe called

"Khyoung-tha"—literally, "children of the nalas." They differ in many respects from the Mughs of Akyab and the sea-board, and are but few in number, living amongst the haunts of the Khiangs, or hill men, but comparatively fixed in their habitations. Their villages are entirely of bamboo, and generally built in short rows or streets; the houses being contiguous, with an elevated platform running along the fronts, common to all, so that the people visit each other without coming to the ground, which is snug and neighbourly; but open to the objection of the certainty of total destruction in event of fire. There were some good-looking faces among the inhabitants, who are rather darker than the sea-coast Aracanese. The women rushed into their houses on my approach, excepting a few old crones, which I have found to be the case in most of the villages I have visited.

Rooproá is divided into two parts by a steep-banked nala, over which is a very neat wooden bridge, floored with strong split bamboo matting. There is no regular rice cultivation about the place, except of the hill or upland rice, which they grow in but small quantities, and that chiefly to make arack. Rice for food they obtain chiefly from the plains, in exchange for cotton, tobacco, sugar-cane, &c. They do not seem good husbandmen, for the skirts of the village looked shabby, jungly, and untilled; and one or two little enclosures for banguns in the village itself were miserable specimens of horticulture.

The cattle, except one or two fine specimens of the gayal, were few, and poor in appearance. Goats tolerably plentiful; and poultry and pigs in abundance. The latter, to my surprise, I saw ushered out of their sties in the evening and regaled on rice, milk, and vegetables, which is always their "custom of an afternoon;" so that the pork of this part of the world is free from the odium attached to that of Hindustan in general. The river abounds in fine fish, which keep rising to the surface.

19*th*, *Wednesday.*—We weighed at 1 A.M., and there being good moonlight, we swept up until, about 4 A.M., we struck hard upon a rock. Fortunately, no injury was done to the vessel, which had come stem on to a solitary rock, about 2 feet below the surface, with deep water all round. We anchored shortly after, and again weighed with the flow at 3 P.M., anchoring at 5 P.M. below an island off the little Khyoung-tha village of Do-oungué; for the serang of the Petrel was afraid of taking her up farther, as the river, though it continues deep for many miles beyond, is in places intersected by reefs under water, and scours and rapids.

After anchoring I proceeded in the jolly-boat about $2\frac{1}{2}$ miles, as far as Kongkhyoung, and then returned in Mungola's boat, which had followed us. The water was very deep all the way, except in two places, where the river spread into shallows. The

scenery was beautiful, but wild in the extreme; and the few scattered huts of the hill people, sparsely distributed amongst the jungle, conveyed a dreary impression of solitude. On both banks the thickly wooded hills come sheer down into the stream; and on the western shore rise up into the Peetoungdŷn, a long range or ridge rising to 3000 and 3500 feet, and bordering the Peekhyoung (a large nala parallel to the Koladyn) on the W. The country seemed bereft of inhabitants; but at Kongkhyoung we came unawares on a man fishing, who was off in an instant, as if he had seen fifty tigers. The river here spreads into shallows, with low shingly islands; and alternately into basins of immense depth: and, looking up the last bend we reached ere turning, we first saw the lofty range called in maps the Blue Mountains, which are said to be not more than 4 days' journey from Chittagong. On this side they look like a vast castellated wall, but are more gradually inclined, as I am told, to the W. The setting sun still gilded faintly their summits long after the chill shades of evening had fallen on the river and surrounding heights.

20*th*, *Thursday*.—Took a ramble on shore in the morning, with my gun, threading the narrow paths through the nul bottoms and the skirts of the small steep hills, returning along the bed of a dry nala. I heard some new notes of birds, but saw nothing new. In fact, these woods are very bare of birds, or of anything living. A pretty rich purple flower was blooming in great plenty, enriching the shaded banks and hollows. It attains about 2 feet in height; the leaves long, coarse, large, pointed, and near the ground. I secured some plants of it to send to Akyab; also specimens of a species of fern, deep green above and golden yellow on the under surface of the leaves. During the day I made preparations for proceeding in a native boat higher up the river. In the night a new cry was heard at intervals along both banks, consisting of two small mellow notes, "Pook-pook," answered by "Peek-peek." I imagined at first it must be some species of Ephialtes new to me (Athene is not strictly nocturnal, excepting A. scutellata); but, after long listening and pondering, I am inclined to attribute the call to a tree-frog of some kind.

21*st*, *Friday*.—Breakfasted in the Petrel, and started at about 11 A.M. (I have no watch) in Mungola's boat, which we had fitted up with great pains and labour. The cooking utensils, &c. went in another boat, and we formed altogether a flotilla of some six canoes, &c. The scenery higher up was precisely the same as heretofore, and after rowing about 8 miles we came-to at Atá (upper) Rooproá, where I went on shore while our cooking boat came up. It is a small village of Khyoung-thas, the head man of which was absent on an excursion to the Akhoung tribe, whom I am anxious to bring in. I learnt here I should have to stop six

days at Oothalong (the highest point of the Koladyn) to have an interview with the Shendoos (an independent people living on the confines of Assam and Burma); so I fear at this late season I cannot manage it. About 3 miles above Atá Rooproá we passed a very romantic waterfall, about 100 feet in height, including all the breaks and bends. The water was now reduced to a mere thread. The high range styled the Blue Mountains is, I find, a continuation of the Peekhyoungdŷn; they appear here to be about 7 or 8 miles off, and probably 4000 feet high. They are almost perpendicular near their summits on the eastern face, sending out great spurs towards the river; but three or four smaller ranges intervene between.

At about 3½ P.M. we arrived at shallows and rapids, and were an hour in getting over them, the men jumping out and shouldering the boat along, while some laid hold of a tow-rope. There are two small islands here, and we moored at one on the westerly bank of the river, off the mouth of the Kweekhyoung. There were several monkeys (Circocebus inuus) striding about the beach; and some pea-fowl (Pavo muticus) in the skirts of the jungle. The Bengal peacock is entirely replaced in Aracan by this species, and it is difficult to decide which of the two should bear the palm of beauty.

22*nd*, *Saturday*.—The accommodations in Mungola's boat are none of the most extensive. A board, 2 feet broad and 6 feet long, serves for my bed. We were off after breakfast, and brought up at Beykhyoung, a small rocky nala near the Koomooi village of Kréroá, where I was to meet Tooan, a chief of the Anoo tribe, whose people had been attacked by a military party in 1848, and who were now located about two days' journey to the N.E. This man, as I was informed, was so influential in that part of the country that his coming in would be the most effectual guarantee I could obtain for the peaceableness of the wild Arengs of those hills. He had already come to a village about half a mile off on his way to see me, but here his fears for the present kept him, while ambassadors were passing and repassing with all sorts of messages, until word was finally brought to me that the old warrior was too drunk to have an interview that day, but would certainly come betimes to-morrow: and so, as it was already 4 P.M., I determined to wait. Kréroá is a village of Arengs (wild people) also, who have left their mountains only within the last two years. They were at first very shy; and the chief, or "toungmong," a fine young man of the name of Poshing, was suspicious and sullen for some time, until, by talking to him cheerfully, giving him some bead-necklaces, and showing him a few "belattee" curiosities, he was brought into good humour, and after a little went and fetched his wife and children and a whole posse of

relations, to all of whom I presented beads, turbans, &c. I made free to take the likenesses of Poshing's wife and sister-in-law, and daughter. The latter was rather pretty, and Poshing seemed very fond of her, and had adorned her with a "Brummagem" handkerchief of many colours for the occasion. They wore pieces of ivory, bamboo, or red cloth in their ears, of from three to four inches in diameter. I could not have thought it possible indeed that the tragus of the ear was capable of such dilatation. Some individuals, however, overdo the mark, and fairly rend the cartilage through, of which we saw not a few instances. They all wore the blue kilt, bound round the hips with gimp, like my fair friends at Mahamunnee. The majority of both sexes are light in complexion, but so begrimed in dirt as to be quite disfigured, especially the children. Their teeth are white and good, and lips ruddy. But, both in appearance and in manners and disposition, these people are not nearly so interesting as the Lurkakoles or Sontâls of Singbhoom.

23*rd, Sunday.*—After some more diplomacy, at about 11 A.M. the redoubtable Tooan was announced, and I went out of my boat to receive him. A worse visaged person I have seldom seen. He was a small, active-looking man, darker than most of his tribe, with a small Tartar beard, and clothed in a plaid or chudder of blue cotton cloth striped with red. After accosting him I perched myself on a shelving rock in the shade, and down we all sat. The palaver was lengthy, and no argument was omitted by me to convince him of the absurdity of his remaining, like Ishmael, with his hand against every man's hand, and a "mauvais sujet" to the government. He grunted assent to everything; but was evidently not gifted with eloquence. To make the conference more imposing, a purwana, duly sealed and signed by me, was made over to him, promising a general oblivion of past misdeeds; and an agreement taken from him, wherein he vowed the most amiable conduct in future. The compact was ratified by the sacrifice of a chicken, which he and I held between us, whilst its head was cut off. He then dabbed my foot with the blood, and I marked his forehead in like manner. Presents were then given to him and three other chiefs of banditti who had also come in, and the motley assemblage broke up.

Among other little curiosities picked up to-day I got two or three bills and casques of the "roung-roung," or great hornbill (Buceros homrai). I have seen five or six of these large birds since leaving Akyab, but all flying high in air; at one time five in a flight, ranged in an angle, as we see many migratorial birds fly. The beat of the wing is slow, and they soar without moving it for a long space at a time. To-day I heard them roaring on a hill across the river, and their voices were absolutely tremendous,

as if hoarsely shouting "Rounk, rounk, rounk!" The long cuneiform tail of this bird being entirely white (all but the basal quarter), becomes invisible at a distance in the air, which grievously misleads the ornithological inquirer, to whom a *short-tailed* Buceros is a thing unknown. I hope to procure some young ones by the next rains; but the Koomoois dislike killing this bird or robbing its nest.

At about 2 P.M. we resumed our voyage or journey up, the river presenting the same monotonous appearance, shut in by steep hills one after the other, rising at times to lofty crags of apparently 4000 feet in height, and all buried under one vast unbroken impervious forest. Trees of all possible varieties and magnitudes attracted the eye — some leafless, some thickly foliaged, some netted as it were in huge creepers extending from one to the other, stood closely packed together, embedded in a mass of underwood and nul jungle. Here and there the banks rose in perfectly perpendicular walls of sandstone, the strata of which assume the exact appearance of ancient masonry, and occasionally the walls, rounded by the friction of water, were so exactly like old Gothic towers that it was difficult to imagine them the effect of nature alone. Down these steep sides the water trickled, pure as crystal, with a tinkling sound, into the deep pools below. Small islets and sand flats occurred occasionally, and bars of stones extending across the river formed shallows and rapids, requiring the boatmen to jump out and drag the boat over by main force. None of these were absolutely dangerous; but one, towards the end of our day's journey, a little above a small nala called Mayeng Khyoung, ran with such violence that our own crew could never have forced the boat up, had we not been assisted by some twenty villagers from the neighbouring hamlet of Mayèng.

Above this rapid the water spreads out into a smooth circular basin, about 300 yards across, which is bounded above by a singular wall of huge stones stretching across, leaving a passage in the centre, called the Kyouk-tunkhá, or stone-door. About a mile above this the river is very shallow; but, by judiciously placing *bandels*, a narrow passage for small boats has been secured. These have been made by the Khyoung-thas, and are much on the same principle as the bandels used in the Bhagiruttee. The shoal parts of the river were thickly planted with short pointed bamboos, stuck diagonally into the ground under water, with a view to deter the incursions of the Arengs, or wild men of the hills, of whom the Mughs appear to have intense terror. At dusk we reached Talák-mé, the last settled village on the Koladyn, and inhabited by Khyoung-thas, lately immigrated from Chittagong.

On the shore I had a long talk to the villagers, about fifty in number, through the interpretership of Mungola. Their fear of

the Arèngs is, as I said, as strong as ever; but, on close inquiry, does not seem to be well founded. The people here have not been attacked for many years; nor could I discover that any assemblages of jungle men from the neighbourhood had threatened the villages on the Chittagong frontier, as lately stated, from that quarter. Nevertheless, a great many Mughs who had come to settle here had returned to Chittagong last year, through sheer apprehension. They seemed rejoiced at hearing of the interview I had had with Tooan and the other Arèng chiefs; and I only trust their anticipations of a general pacification in consequence will not be disappointed. Certainly, the Arèng Koomoois, if inclined for a foray, are in very unpleasant propinquity to these villages; for I was shown the hills they inhabit, which appeared barely 10 miles off to the N.E. The main ridge seemed about 3000 feet in height.

The grand bugbear, however, are the Shendoos, an independent people who live to the N. of the source of the Koladyn, and in a tract of country which has never apparently been defined, but which lies contiguous to the converging boundaries of Aracan, Chittagong, Munnipoor, Assam, and Burma. Their nearest villages are about 40 miles from Talak-mé. Still, concerning their inroads, I could gather no precise intelligence. On my asking whether any one present had even *seen* a Shendoo in the vicinity, they were obliged to confess they had not: but that, last year, a party of Mughs going to their clearings a few miles higher up the Koladyn had fallen in with a rhinoceros, at which they fired, when at the report a body of apparently twenty or thirty men, who had been lying ambushed in the jungle, started up and fled. The Mughs, very much comforted at their retreat, made bold to follow them cautiously, and came upon their bivouac and trail, and from certain signs concluded that they were Shendoos.

The attacks made by the Khiangs or Shendoos on villages are certainly at times most serious, and the secrecy and suddenness with which they are perpetrated adds to the terror the too frequent success of these incursions inspires. The attacking party, generally to the number of forty or fifty men, lie in ambush in the thick jungle bordering the doomed village, and silently surrounding it in the middle of night, rush upon the sleeping inhabitants, spearing all who attempt opposition, and seizing the rest—men, women, and children—with whom they quickly decamp, proceeding by forced marches, which baffle pursuit, into the Shendoo or Yeo territory, where they soon dispose of their captives as slaves to the Burmese

It must be noted that these attacks are for the most part forays made by one tribe against another, each one in retaliation for a prior inroad of the opposite party; the feud continuing for gene-

rations. It is very seldom that the Arèngs or Shendoos commit these depredations on the inhabitants of the plains. The national weapon of the hill people in Aracan is a short long-bladed spear, furnished with a spike at the butt-end. As archers they must be, to judge from their bows and arrows, very contemptible; but the use of fire-arms is rapidly spreading amongst them, from the great number of muskets imported every year into Akyab, and which quickly find their way into the interior.

Beyond this point (Talak-mé), Mungola's boat, which draws 18 inches, cannot go, and I should have to proceed in one of the small canoes of the country as far as Oothalong, 7 miles; beyond which journeying must be on foot. As there was nothing to do in the way of business in that direction, and nothing to see but the same lifeless wastes of hill and jungle, I determined to turn my face homeward from hence. I passed a wretched night on my "*board* and lodging" in the boat; a bitterly cold wind from the mountains driving the fog, till my bedding was soaked almost through.

24*th, Monday.*—The dense fogs do not permit of starting till about nine o'clock; at which hour, after breakfasting, off we set. We passed the rapids pretty well, although the one below Kyouktunkhá was rather a nervous affair, and we shot past a rock the least contact with which would have sent the boat over like a ninepin. At another rapid, about 5 miles lower down, we did not fare so easily. The boat took the ground, swung round, and, if the men had not jumped out and seized hold of it, would have upset. For half a minute or so it was fairly on its side, to the amazement and consternation of every one on board, including a fat milch goat, which bleated furiously till we righted. From this we proceeded rapidly down, for about 10 miles, to the Koomooi village of Tangyong, where we stopped to see a dance and merry-making of these wild people.

The first thing that attracted my attention on the bank, immediately below the little bluff hill on which was situated the village, was a noble bull of the Gayal species, which a number of Koomoois were attaching by heavy ropes to a felled tree. The poor creature was quiet and patient, little conscious of the dreadful fate awaiting it; for it is left tied in this manner for three days and three nights, without food or water, while the dancing and revelry is going on in the village; and, at the end of that time, when the animal is utterly exhausted, and the villagers wrought up to frenzy with drink, it is dragged into the village, tied down to a stake, and then slowly despatched by numberless stabs with spears, the whole crowd dancing round and round and deliberately sticking it in every part of the body.

The Koonds exceed the Koomoois in barbarity, because their victim (slain in much the same manner) is a human creature!

But in all other respects this cruel and cowardly amusement stands unexcelled amongst the most vicious tastes of the most savage people.

While gazing on the doomed Gayal we were warned, by a bumping, clanging sound, and an occasional chorus of most unmusical voices overhead, that the revelry had begun on the top of the hill; and so clambering up a steep path for some 400 feet, in due time I found myself, breathless and amazed, in the midst of as singular a scene as I have ever witnessed.

The village consisted of some ten houses, occupying the entire crown of the hill. They were made entirely of bamboo, exceeding clean and well put together, and tricked out in such cunning devices of savage finery as were admirable to behold. The roof and sides were stuck all over with bamboos, some split at the top into stars or brushes, others scraped into little streamers, and others adorned with pendants of pith. The fronts of all the houses were elaborately painted with black ornamental marks and devices; but on the dwelling of the giver of the feast invention had exhausted all her arts. It was a perfect *chevaux de frise* of ornamented bamboos, and painted within and without with black and white in elaborate designs, while round the house was a temporary bamboo platform or roofless veranda, on which the dance was performed.

The actors in this were some twenty or thirty strapping young fellows, ranged in line facing and encircling the house. The "music" was composed of about eight or nine of them, sounding the most unique instruments I have ever seen. One was a curious triangular species of metal gong, which when struck whirls round, emitting an undulating sound.* There were also four of a singular species of bassoon, formed by a hollow gourd stuck on to the side of a thick bamboo, surmounted by a piece of cloth for a flag, and which when blown into gave out a dull blaring note, between a buzz and a snore. The rest of the musicians had cymbals or small drums; and some sprightly youths, unprovided with instruments, put their forefingers to their mouths and every now and then gave a whistle which would have done credit to the gods in one of our London theatres. There was no tune to speak of; but a monotonous unchanging succession of thumps, clangs, and blows on each particular instrument, in about the same time and uniformity of intonation as an ordinary country church-bell; while ever and anon the blowers of the gourds withdrew their lips and gave vent to a long-protracted bellow, in which all present, male and female, joined till out of breath. The "step" in this national dance is not complex, or difficult to acquire, being simply

* This is a Burmese, not a Koomeon instrument.

that peculiar to the treadmill, or an alternate genuflexion of either knee, with an occasional shuffle sideways as the circle moves slowly round the house, and a low bow. The women, who had dived into their houses on my approach, were summoned forth after a while, and made to join the circle—not with much "courtesy of soft persuasion," but chiefly by being taken by the nape of the neck and shoved headlong into the ring, where, when once fairly established, they entered into the fun with great gusto. Many of our own party, who were also Koomoois, were hauled in, and the mirth grew "fast and furious," especially as all assembled were copiously regaled with huge pots full of seethed pig's and bullock's flesh, rice, and khon; which latter is a very pleasant preparation of fermented rice-water, as inebriating as beer, and of which I am free to confess I partook, sipping the same through a reed, as you do "sherry cobbler," to the great satisfaction of mine host, the giver of the entertainment, and of all the Koomoois assembled.

The dancing continued for about an hour, when they left off and went about their divers occupations, which (to-day at least) appeared limited to ornamenting bamboos to an incredible extent. The women, being again assembled, were presented with beads; after which they departed, and I saw them sitting in their houses smoking pipes, while others went to fetch wood and water. The men sat at their work near me, and we had a long talk, and did a little business in the way of bartering beads for weapons and other implements. They are a fine muscular, active set, and some decidedly good-looking; but of all the women assembled there were but two that could be called pretty, and they were mere girls; all those grown up were monsters of rotundity.

These entertainments are not on account of any periodical festival, or on any occasion of rejoicing, or other commemoration, nor at the joint expense of the whole village; but are given by any individual who has amassed the means of so doing; and that these must be ample may be gathered from the fact of the forementioned Gayal alone valuing 80 rs.; while the pigs, bullock, and poultry slaughtered for feeding, and the khon brewed for inebriating, the numerous guests, must cost at least as much more; for these revels last three days, and Koomoois are invited to the spot from the whole country around.

I remained at the village longer than I had intended, from a report that a Shendoo chief was approaching, having hurried down to pay me a visit. Accordingly, towards evening, after I had descended to my boat, a small party arrived, consisting of a toungmong, or hill chief, named Yawpang, of the Anoo tribe of Koomoois, he being a fellow chief of Akhoung, whose village had been attacked in 1848. With him came a deputy from Akhoung himself (who was stated to be ill), and a fine young lad, named Kolák.

With them were two Shendoos, from whose countenances I thought the Mughs of my party would never have withdrawn their eyes again. They were not chiefs, but merely spies or emissaries, and had nothing in their appearance to distinguish them from common coolies. In this I was much disappointed; but nevertheless made myself exceedingly polite and amiable, and marshalling them all under a shed which had been erected on the shore, we sat down and entered into a long conference, which must have been rather "ennuyant" to the bystanders, seeing that I had first to address Mungola in Hindustani; he, Chedyn (a hill interpreter), in Burmese; Chedyn, Yawpang, in Koomooi; and Yawpang the Shendoos in Shendoo! And through such progressive stages of question and answer the polylogue dragged its slow length along. However the interview ended in mutual expressions of good will, esteem, and inviolable friendship, winding up with presents to the visitors, at which their delight was sincere, if nothing else was. As the Shendoo chief had not taken the trouble to come, I did not think it incumbent on me to send him anything of value; but as an earnest of more in store, in event of his visiting Akyab, I sent him, through Yawpang, a penknife and one of each of the Company's coins extant. Yawpang was delighted with some powder and shot; and also partook, with great relish, of some brandy. And towards dusk they all departed in high good humour.

In the dress of the Shendoos there was, as I have said, nothing remarkable: but Yawpang was cleaner and better clad than any of the hill men I have yet seen; his countenance open and intelligent, with marked Tartar features. Kolák was dressed in an exceedingly pretty plaid, manufactured at Yeo in the Burmese territory.

25*th*, *Tuesday*.—Less fog than usual: started at 9 A.M., immediately after breakfast, after purchasing from some of the party above mentioned a few articles as specimens, such as a pretty "sporran," or bag, which these people weave in cottons of various shades of grey, and carry at their sides, slung over the left shoulder; the front of the bag being sometimes adorned with the skin of the shawl-goat: also a spear, and a little dried hollow gourd for containing tobacco-juice, of which, diluted with water, the hill people are very fond. We sped down the river quickly, stopping for an hour at Kreyroá, where I gave Poshing a maund of salt (a valuable present to these people), and purchased a spear, a bow and bamboo quiver of arrows, and a side knife; and then passing on reached the Petrel, off Rooproá, at dusk.

26*th*, *Wednesday*.—There is a species of *tick* which infests the nul jungle in this country, and of which I have had no less than four upon me (in me, I might say) during this excursion. This

disgusting animal causes great pain, as it insensibly inserts itself into the skin, and cannot be withdrawn without bringing away some of the inner part of the cuticle, which causes considerable irritation. The Mughs call the insect "mhroa;" and the Chittagongies, "atalee." They use the juice of the fresh ginger-root to detach the animal, and check the inflammation it excites.

After transacting some business, we weighed, sweeping down, and anchored in the evening off Kubbraroa, about 4 miles above the rock on which the Irawadi steamer struck in 1850.

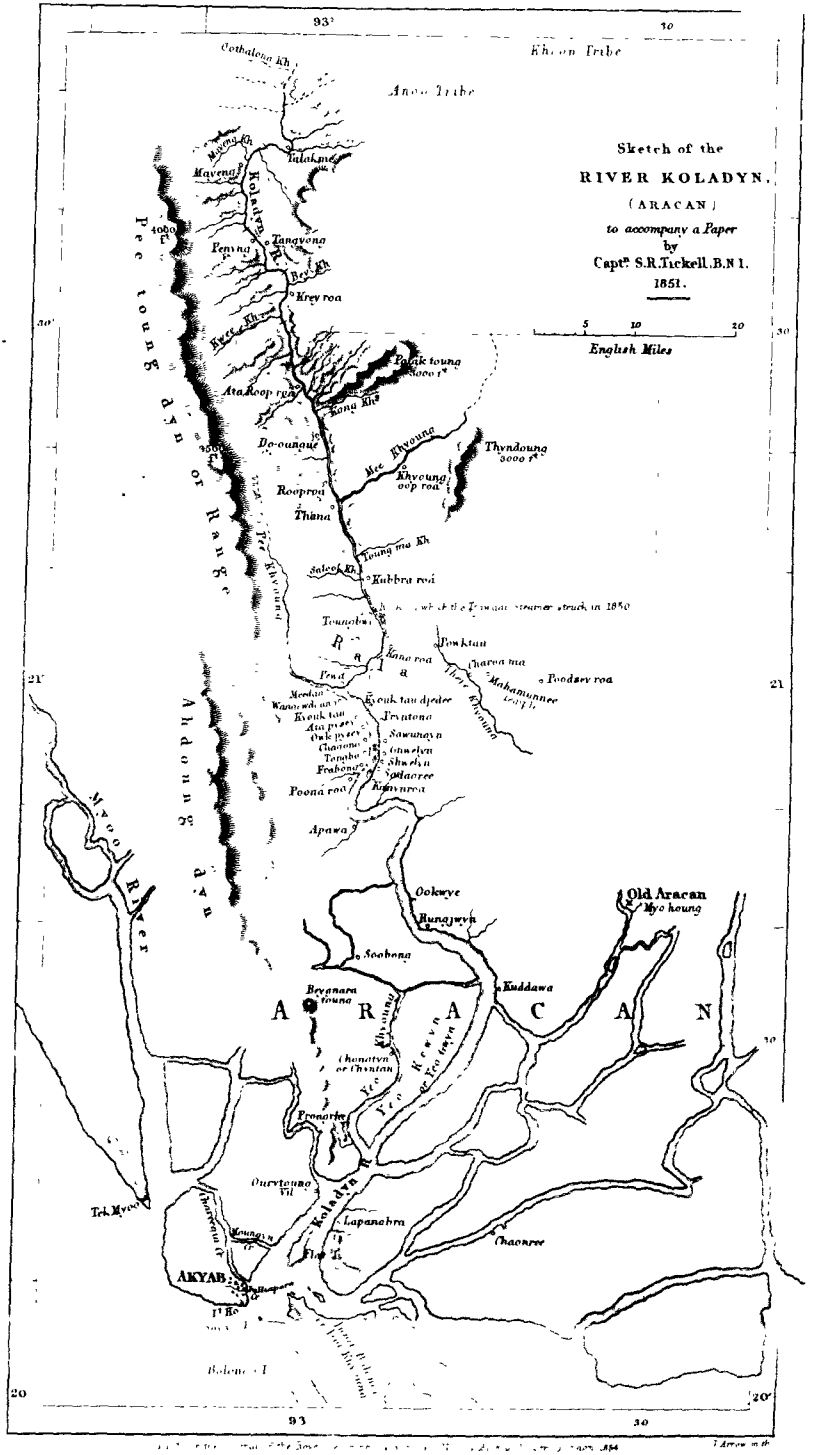
27*th*, *Thursday.*—Weighed at 1 A.M., sweeping, there being no wind. At about 10 A.M. a light north-westerly breeze sprung up, and shortly after we anchored off Wangewdung, of which place I was anxious to take a sketch, it being by far the prettiest spot on the Koladȳn; but, on going on shore, I found the village so buried in trees that I could get no view of it at all, and so contented myself with a sketch of the river from the landing-place, and of two pretty jedis in the foreground. The country inland is entirely open, stretching in a noble plain to the hills, whose first ranges commence at about 5 miles, backed by the castellated crags of the Ahdung-dȳn, which lie beside the Mȳoo river. The ground is high, not liable to inundation, and the country along the river is exceedingly populous, and well cultivated. Altogether, this spot seems well calculated for the residence of Europeans; the climate being reputed healthy, and the water excellent.

28*th*, *Friday.*—Weighed at daybreak, and at about 10 A.M. of the ensuing day reached the influence of the sea breeze (near Ourytoung), which brought us quickly to Akyab, off which we anchored at 3 P.M. of the 1st of March.

Glossary of Terms used in the Map and Journal.

Arèng	Wild. Applied to the hill men who pay no tax.	*Khyang*	Hill men generally.
Chara	A seraie for travellers.	*Khyoung*	A nala, or creek.
Doung	A bay or bight.	*Khyoungthá.*	"Son of the nala;" a tribe of Aracanese.
Dyn	A range.	*Kyouk*	A stone.
Jedi	A temple.	*Prong*	A meadow or plain.
Keonk	(Properly Keonup), a kind of Tehsildar paid by a per centage on the collections of his circle.	*Roa*	A village.
		Tau	Forest, or jungle.
		Tōung	A hill.
Kewyn	An island; also a Keonk's circle.	*Toungmong*	A hill chief.

N.B.—The vernacular name of Akyab is "Tsètwé;" and another and more ancient designation of the Koladȳn is "Gytchafa."


Sketch of the
RIVER KOLADYN.
(ARACAN)
to accompany a Paper
by
Capt.ⁿ S.R.Tickell.B.N.I.
1851.
5 10 20
English Miles
Cothalong Kh.
Khyon Tribe
Anoo Tribe
Talakmee
Mayeng Kh.
Mayeng
Kolatwa R.
Tangyona
Penyng
Brey Kh.
Krey roa
Krey Kh.
Pee toung dan or Range
Pauk toung 3000 ft
Ata Roop roa
Kang Kh.
Do-ounaue
Mre Khyoung
Thyndoung 3000 ft
Khyoung oop roa
Roopreu
Thana
Toung mo Kh.
Salee Kh.
Kubbra roa
Tennobin
Pow ktan
Kana roa
Charoa ma
Mahamunnee
Poodsey roa
Kyouk tau djedee
Tantona
Sawuneyn
Chaounee
Tembo
Shwelin
Frabeng
Poona roa
Kamurea
Apawa
Mayoo River
Ookwye
Old Aracan
Myo houng
Runajwyn
Seobong
Kuddawa
Beygnara toung
A R A C A N
Chanatyn or Chantan
Yee Kreyn or Yeo inya
Fronartee
Ourvtaung Vil
Koladyn R.
Trek Myoo
Lapanchra
Chaouree
AKYAB
Bolemo I.

IV.—*Narrative of a Journey from Cairo to Medina and Mecca, by Suez, Arabá, Tawilá, al-Jauf, Jubbé, Háil, and Nejd, in* 1845. By the late Dr. GEORGE AUGUSTUS WALLIN, Professor of Arabic at the University of Helsingfors in Finland.*

Communicated by the SECRETARY.

Read April 26, 1852.

I HAD hired two Bedawies (Bedouins) of the Heiwy tribe to take me from the capital of Egypt to Al'akabá, from which place I intended to pursue my way across the Sherâ chain to the town of Algawf,† in the interior of the northern desert of Arabia.‡ We started from Alkâhirá (Cairo) on the 12th of April, 1845, and following the high road of the Indian transit to Suweis (Suez), we arrived in two days at 'Agrood, the first station for the Egyptian pilgrims on their way to Mekká. The desert tract, through which this route leads, is too well known to need any mention here; I have crossed it five times in different seasons, but I never saw any nomads encamped there, nor any Bedawy tents pitched on its vast plains, nor, in fact, so much pasture on its sandy soil as would suffice for the subsistence of the smallest Arab tribe. But the communication with Suweis in late years having much increased, owing especially to the extended Indian transit, there is day and night a continual movement of karawâns and individuals going to and fro on this way, keeping the intercourse alive between Asia and Europe. The road has been cleared from stones and other impediments by the present Pâshâ of Egypt; a telegraphic line has been established between the two towns; European inns have arisen for the exclusive accommodation of European travellers, who now, in convenient carriages, make the journey of three days' camel-march in ten to twelve hours; and with awe and astonishment the poor Bedawies make mention of the rails, which, they are told, are going to be laid down by the restless and *envious* Frangis, in order to deprive them of the last scanty profit they still earn on this way by their camels. The castle of 'Agrood is larger and generally kept in better order than most of the others on the pilgrims' way, but the fresh water it contains, though abundant and, I believe, the only well in the whole district, is very brackish.

On the 15th we continued our way from the castle. Leaving the pilgrims' path to our left, we traversed the desert, which surrounds Suweis on the land side, first in the direction of E. by S.

* In order to make this paper correspond in style and arrangement with a former one, already published in the twentieth volume of this Journal, it has been printed, as nearly as possible, in the author's own words.—ED.

† The *j* is sounded like *g* in Egypt and Arabia. Jauf = Gawf.—R.

‡ *See* Itinerary at end of the paper, p. 207.—ED.

during 2 hours, and then S.S.E. during 7¼ hours, until we reached the spring of Mab'ook, situated on a plain, upon whose scanty herbs and bushes a Bedawy woman grazed her sheep. The water of the spring is tepid, but, cooled in the skins so generally in use amongst the Arabs, it is sweet and excellent; and as it is the only spring of really good water in the environs of Suweis, the wealthier inhabitants take their supplies here, notwithstanding the great distance by which it is separated from the town. The common people of Suweis are generally supplied with water from a pond, called Gharkadé, situated at the foot of the mountains of the Sînâ peninsula, from whence it is first brought by Bedawies on camel-back in skins to the shore of the Red Sea, and then forwarded to the town in small boats. There is still another well, about one hour W. of Suweis, on the way to 'Agrood, but its water is so bad and brackish as to be scarcely drinkable. There are some remains of a decayed wall to be seen at Mab'ook, and in general small flocks of sheep pasturing around the spring. From hence we took the direction of N.E. towards the mountain of Alrâhá, and entered after a march of 2¼ hours a valley, called Ferâshât al shîh,* where the two species of the wormwood herb, Shîh and 'Ubeitherân', grew in rich abundance. The valley extends between Alrâhá on the right and the lower mountain of Humeirá on the left hand.

On the 16th we reached the end of the valley after a march of 1¼ hour. Here commenced a narrow defile, called Bal'îm Almaghârbé, which took ¼ of an hour to pass. After a march of 4½ hours more over open desert plains, we issued again upon the Egyptian pilgrim-way. The road we had followed from the castle of 'Agrood is the way which the Maghrabiés, the pilgrims from northern Africa, generally take to Mekká, and which, after them, is called Darb Almaghârbé. We made a march of 3¼ hours more in a valley called Hashm Alfarwá, which may be regarded as a continuation of the valley through which our way had led from Mab'ook. It opens here in a vast plain, called Wâdî Alburook, surrounded on all sides by mountain ranges. We passed at the foot of a mountain, which, from a natural cistern in its rocks, where, during the rainy season, a scanty water sometimes is found, has received the name of Semîlet Alderâwish. Our course on the plain was E.S.E. b. S. during 3 hours towards a solitary mountain called Gebel Hasan.

On the 17th we took the direction of S.E. from the mountain, and arrived, after a march of 9½ hours over the same plain, to the second station on the Egyptian pilgrim-way, the castle of Alnakhil, situated nearly in the centre of the extensive plain on a

* Wormwood carpets.—R.

low hill, at the foot of which there stood now only one small house, erected by a man of the garrison.* The castle contains only one well, whose brackish water is raised by the hydraulic machine generally used in Egypt, and known by the name of Sâkiié, and is then led into two larger basins and a smaller one on the outside of the walls. Thus we had taken 33 hours from 'Agrood to Alnakhil; a journey which the pilgrim-karawân generally makes in 30; but the latter does not pass by Mab'ook.

The Bedawies, who generally arrive at Wâdî Alburook, are tribes of Teiâhâ, Terâbîn, Huweitât, and 'Alâwîn; but as this year for want of rain the pasture was scanty and withered, the land was abandoned. The Teiâhâ are the largest tribe in this neighbourhood, and occupy all the land between Alnakhil, Ghazzé, and Wâdî Al'araba. They pretend to derive their origin from the renowned tribe of Benoo Hilâl, who, when emigrating from Negd to Egypt and northern Africa, they tell us, fell short of water in this desert. In this dilemma, three young men, with as many girls, separated themselves from the karawân, with empty skins carried by three donkeys, in order to seek for water in Wâdî Sadr, a valley which, under different names, has been stated to me to descend from 'Arîsh, along the mountain range on the western coast of the Sînâ peninsula. They missed their way (tâh) in the desert, and not being able to rejoin the karawân, they saw themselves obliged to remain in the land and take up their abodes with its inhabitants But who those aboriginal inhabitants were the present Teiâhâ cannot tell us. The three young couples, called Wird Benî Hilâl, lived and multiplied in the land, and the Teiâhâ regard them as the ancestors of their tribe and the authors of their name, which signifies "one who loses his way." The principal clans of the tribe are Ibnn Alrashîd, to whom the Sheïkh family belongs, and Hukook, who generally cultivate corn-fields in the neighbourhood of Alghazzé and Nassâr, and who keep nearer to the castle of Alnakhil. To this tribe belongs the right of convoying the pilgrim-karawân and travellers as far as Al'akabá on one side, and to Ghazzé on the other, or some other Syrian place, generally Aldhâhirigé, where their relations with the neighbouring tribes allow them to enter. In consequence of this we generally find, during the winter and especially about Easter time, when the European tourists and the yearly karawân of Christian pilgrims of Kopts set off from Egypt to Jerusalem, the Teiâhâ Bedawies encamped in the neighbourhood of Alnakhil, or sometimes even received and lodged in the castle itself, in order to await the chance of meeting travellers. They are, next to Huweitât, the largest and mightiest Bedawy tribe in these lands, and

* When here again in 1847 I found to my surprise, that in two years a hamlet of twelve houses had sprung up around the castle.

unquestionably of a nobler and purer race, still clinging to the laws and customs of nomadic life more strictly than any of their neighbours.

The Terâbîn are very much dispersed amongst other tribes, nomadizing on the boundaries of Egypt, and commence by degrees to disappear from the desert and mingle with the peasants of Egyptian and Syrian villages. They are found in the environs of 'Arîsh, on the W. coast of the Red Sea and in the mountains on its eastern shore; but everywhere they are despised by their neighbours as a low and miserable tribe, of the same origin as the Heteim. Neither of this tribe nor of the Teiâhâ have I found any mention made by the Arabic authors.

The Huweitât live chiefly in Wâdî Tîh and the land of 'Egmé, and in the neighbourhood of Al'akabá. They are, no doubt, the Bedawies, whom Alkalkashendy mentions in his genealogical work on the Arab tribes under the name of Benoo Hay. Alhamdâny, quoted in that work, states this tribe to be descendants of the formerly so renowned Syrian tribe of Faal, without enumerating the intermediate degrees of their lineage or giving any other notice of them. The author of Alkâmoos likewise mentions Bedawies of this name, without any further information. The 'Alâwîn generally keep to Wâdî Al'arabá, where they live intermingled with their kindred tribe of Huweitât.

During my stay in the castle of Alnakhil there arrived a Heiwy sheïkh of the Ghureikân clan, in company with a civil officer of the Egyptian Pâshâ, who, after a short circuit amongst the Bedawies of these lands, was now about to return to the capital. As this sheïkh was going to return to his family in Wâdî Tîh with two unloaded camels, my guides made an agreement with him to take me to Al'akabá, which was only one day distant from his home. The Egyptian officer hired my Bedawies to take him to Alkâhirá; and all parties being agreed about the exchange, I started with my new guide on the 18th from the castle of Alnakhil, and made a march of 4 hours in a S.S.E. direction on the plain of Wâdî Alburook.

On the 19th our course was more S.E. on the same open land, though the ground by degrees commences to undulate in hillocks of sand, and the plain to be intersected by low mountain ranges of lime and sandstone. A few hours from the castle the district assumes the name of Kureïs, and there are by the side of the pilgrim-way some old wells, surrounded by remains of decayed walls, which the people told us point out the place where the old castle of Alnakhil had originally been erected. After a march of 9 hours through this undulating land, we changed our course to a more easterly direction and entered into the higher and more regular mountains of Kureïs. Following the course of deep

valleys in various directions, we descended lower and lower from one floor of the calcareous mountains to another during 2¼ hours.

On the 20th we arrived, after a march of 1¼ hour, at the wells of Kureïs, situated on a white chalky ground in a deep valley, which extends from N.W. to S.E. They are about six in number, but the water, though abundant, is very brackish in all of them. After a march of 8 hours from these wells over an undulating mountainous country, we reached Wâdî Tîh. Here our way lay for two hours in various directions; sometimes we followed the course of narrow deep dales, sometimes rugged paths on the mountain-tops, until we found the encampment of the clan of which my guide was the sheïkh. Though nomadizing now in their own country with all their camels and their herds, they lived in the open air without any tents, as is the custom with these nomads during the spring. As the tents would be a great encumbrance on their incessant and almost daily removals from place to place during this season, they either suspend them in acacia trees, as the Tuwarâ Bedawies in the interior of the Sînâ peninsula do, where they remain untouched until the owner comes to fetch them away, or they keep them, every tribe in its respective village, as do the Heiwy nomads in Al'akabá, where a warehouse or a shop in the castle is generally allowed to every more important sheïkh of the neighbouring tribes. This I never have found to be the case with the tribes in the interior of Arabia, who never live in the open air, and never leave their tents in the custody of villagers. Here they do pretty well without them, as they find for themselves and their naked children, a sufficient shelter against the heat of the sun and casual rains in the numerous grottos and vaults, formed in the limestone rocks of the high mountains, which on all sides surround their deep valley.

During a delay of some days which I made, I consulted my host about the best and surest way to take to Algawf. Dissuading me from going to Al'akabá, he suggested another shorter way, leading over the 'Arabá valley across the Sherâ chain to Ma'ân, and he promised to bring me himself to an acquaintance of his own, a chief sheïkh of the 'Umrân tribe, encamped then on the eastern slopes of the last-mentioned mountains. Though wholly unacquainted with the roads of the district through which I had to pass, and totally ignorant of the relations prevailing between the different tribes I might meet on my way, and, moreover, suspecting that nothing but hope of profit dictated the advice my host gave me, I could not but regard it as an advantage to avoid as much as possible every communication with people settled in towns and villages, as I had already been taught the maxim of the Bedawies, "always to keep with them," and, therefore, I readily accepted his proposal.

On the 23rd we left the Bedawies, and having followed a side valley of Wâdî Tîh for $1\frac{1}{3}$ hour, we issued upon an open desert plain, which we crossed in a N.E. direction in $1\frac{1}{4}$ hours. Here we were hospitably received to a scanty meal of Indian corn,* boiled to a mess between gruel and pudding, by a family of my guide's tribe, who, like their relations in the valley, lived in the open air among the small desert bushes.

On the 24th we continued our way, which for the whole day lay over vast sterile plains, separated one from another by intervening solitary mountains. The first of these plains my guide called Wâdî Hamâde, adding that sometimes very strange sounds, like those of kettledrums, are heard to rise from the earth, without any one being able to account for this extraordinary phenomenon. Having crossed in $8\frac{3}{4}$ hours three of such plains, forming as many gulfs of the desert sea, we made a halt for the night at the entrance to a valley of the mountains which border Wâdî Al'arabá on the western side.

On the 25th we followed the course of narrow winding dales, running in an easterly direction down to Wâdî Al'arabá. They produce in great abundance unusually high and broad-stemmed acacia-trees, on whose thorns and leaves the camels pasture with avidity. The mountains, through which these dales run, are in general very low, and their descent towards Wâdî Al'arabá gentle and inconsiderable. After a march of $6\frac{1}{4}$ hours through such dales, we entered the great Wâdî Al'arabá at a point, according to my guide, one day distant from Al'akabá, and two from Wâdî Moosà. We made a march of 2 hours more in the loose sand of the valley before we halted for the night.

On the 26th we passed by a spring of tepid and brackish water, round which some families of 'Umrân Bedawies were encamped. Our march was slow and fatiguing, owing, not only to the loose and deep sand, by which the ground is covered, but also to the slight ascent we had to make towards the eastern parts of the valley, which on its whole extent gradually slopes from E. to W. The western parts of Wâdî Al'arabá consist in general of a plain and level sandy soil, producing a comparatively richer vegetation of herbs and bushes; but on the eastern side, at the foot of the Sherâ chain, the valley consists of an undulating and hilly ground, covered with gravel and stones, and larger or smaller blocks of granite, rolled, as it were, from the overhanging mountains. The growth of herbs is here poorer; but here and there is seen a solitary acacia-shrub. We crossed the valley in an oblique direction of E.N.E. and arrived, after a march of 8 hours from the place where we had passed the night, at the mouth of a narrow dale,

* Dhurrá, *i. e.* Sorghum vulgare.—R.

called Wâdî Gharandel, which runs down from the Sherâ chain. At the very entrance of this dale there is a spring of sweet and pure water. A small streamlet, descending from the spring, but soon vanishing in the sand, has produced along its course some verdure and a few dwarf-palms.

On the 27th we followed the serpentine course of this valley, winding in all directions between perpendicular mountain walls of about 1000 feet in height, which, variegated by divers colours, presented in many places, as it were, the aspect of marbled paper. After a march of 3½ hours we had reached the end of the narrow valley, whose breadth, in some places, does not exceed 15 yards; and as it has no issue, we commenced ascending a steep mountain defile called Nakb 'Agâné. We followed difficult and steep paths, leading sometimes over brinks of precipices, sometimes over opener and more extensive plateaus, during 4½ hours.

On the 28th we continued our ascent for two hours more, after which we gained the crest of the mountain, forming a plateau called Wâdî Dalâghé. A march of two hours on this plateau in an E.N.E. direction brought us to a spring of the same name, around which Bedawy fellâhs cultivated wheat and maize. After 1 hour more, we arrived at the encampment of the 'Umrân Bedawies, to whose sheïkh my Heiwy guide had promised to bring me.

On the 30th I left the tribe with my new guide, the sheïkh Humeïd bnu Salmân Al'umrany. We followed for about one hour still a N.E. direction on the plateau of Wâdî Dalâghé, when, turning to E., we entered another valley, called Wâdî Mabrak, which also was cultivated by fellâhs. In 1½ hour we reached the end of the valley at the spring of Bastá, whose abundantly flowing water is of the most excellent quality. Near to the spring there stand some insignificant remains of decayed clay-walls, denoting perhaps the place of some frontier-fortlet, from which in olden times, when the whole of this chain was probably inhabited by peaceful peasants, a look-out was kept over the adjacent desert and its turbulent nomads. Leaving the spring behind us, we immediately issued on the vast plain of the Syrian desert, into which the chain merges with a slow and insensible descent, and taking a full easterly direction we reached in 5 hours the town of Ma'ân.

This is the name invariably given this place by all Arabs of the present age, instead of the Ma'ân of the old Arabian geographers. Ibnn Haukal, quoted in the Geographical Compendium of Muhammad bnu 'Aly Alspâhy, says that Mu'ân is a small fortified place in the land of Sherâ, at one day's distance from Shawbak, formerly inhabited by Benoo Umayá, but at his time already deserted and ruined. The present Ma'ân is one of the largest places on the Syrian pilgrims' way, containing about 200

families of 7 different clans or fenâd, mixed up with emigrants from other villages in Syria. They are in general a healthy and strong-built people, of the most prominent Syrian type, able to raise a force of 150 or, as others told me, of 300 well-armed young and gallant men. Trusting in this force, the inhabitants in our times have begun to make head against the claims of the nomads, either refusing altogether or abating the so-called brother tax, which a great many sheïkhs of the neighbouring tribes of Sherârât, Huweitât, and 'Enezé exact of them. This tax, levied by all genuine Bedawy tribes, almost without exception, not only on every village in the desert, but also on others wayfaring and trading among them, and also on weaker and poorer tribes of a low and mixed bastard origin, is probably founded on the claims which the Bedawies think themselves entitled to lay on the desert as their proper inherited land. Every district of this common land has in course of time passed in the more or less exclusive possession of one certain tribe, within the limits of whose dominion no other tribe, without special permission, is allowed to enter, no village tolerated to exist, and no stranger to pass without protection, bought by tributes from the masters of the soil. This protection, however, is in general very easily granted. A small present expended upon any member of a tribe, be it only a woman or a child, or "salt and bread" shared with them, makes a stranger, wayfaring in the desert, the brother not only of the individual, but of the whole tribe. The conditions upon which this brother protection is granted to villages are defined by nothing but old custom. Generally the tribute consists in presents of clothing, given not only to the principal sheïkh of the tribe, but also to almost every influential person of the different clans, or, in Negd especially, in dates and corn; but above all, the patrons require a liberal reception and a prodigal treatment, whenever they choose to visit the village, and a ready help in casual exigencies. The patrons, on their side, are bound to protect their clients against claims and quarrels with other tribes, and in case of disputes arising between them and Bedawies, to mediate between the contending parties.

This brotherhood exists also between the nomads themselves, though in a somewhat modified form. The relations which may possibly prevail between different tribes are threefold: they either are brothers, in virtue of which relation they are not only mutually allied, but also able to protect strangers and villagers, standing in brotherhood with them, against the exactions of others, though no tax is paid on either part, and they are both supposed equal in genuineness of origin; or they are friends, in which case they are reciprocally secured from molestations and assessments from others, but neither party has a right to protect others against the claims

of their friends; or, if neither of these relations prevail between them, they are enemies, and their hand is against every man, and every man's hand against them. Now, all settled cultivators are regarded by the Bedawies as natural enemies, who are consequently not allowed to subsist in their land, unless under their protection, which protection they sell for as high prices as they are able to extort. But the more the settlement increases in power and wealth, the more they strive to repel or moderate the nomads' claims, as we see has been the case with the Egyptian villages, which before Muhammad 'Aly's time were more or less dependent upon the mercy of the neighbouring Bedawies, and in later years, though in a less degree, even at Ma'ân. This resistance, however, on the part of the villagers, and their standing their ground, seldom fails to be acknowledged by the Bedawies, to whom nothing is so contemptible as cowardice and dependence, and generally goes a great way in making the relations with them more intimate. This is in fact the case at Ma'ân, whose valiant and manly inhabitants the nomads esteem more than most other villagers. This greatly contributes to facilitate the intercourse between the two parties, and a livelier trade, than I witnessed in any other place on this route, is carried on by way of barter between Ma'ân and the surrounding desert. The articles most wanted by Bedawies are clothes, gunpowder, lead, weapons, spices, coffee, and sugar, which latter luxury has in our times become in great request even in the desert, and for these they give in exchange camels, sheep, wool, butter, and milk. During the journey I made from hence among the many and divers tribes along the eastern descents of the Sherâ chain, I found in almost every encampment several tradesmen of Ma'ân, who had come to the country, as is the custom here with the townspeople, partly in order to feed during the spring upon camels' milk in the tents of their hospitable nomad brethren, partly and principally in order to collect old debts. Were it not for the credit these tradesmen allow the Bedawies, they could procure themselves these necessaries much easier and cheaper from the same markets whence the inhabitants of Ma'ân purchase their wants, as well as most of the commodities they use for their exchange trade. These markets are principally Hebron, Ghazzé, and Al'akabá. Sometimes they go as far as to Damascus to the N., and to Algawf to the E. Their way to Hebron and Ghazzé leads through Wâdî Moosà, generally called here Sîk, and to Al'akabá through the defile of Shetâr, opening in Wâdî Lithm, a valley which crosses the Sherâ mountains at a distance of about 8 hours N. of Al'akabá. The most important market, however, is the village itself during the two days, the Syrian pilgrims' karawân generally reposes here on its way to and from Mekká. During the whole

of the year the inhabitants lay up in store for these four days, called "Mawsen," * all sorts of provisions and forage for the pilgrims and their camels, which they generally very profitably exchange for other wares. As the greater part of the pilgrims like to combine mercantile speculations with the meritorious discharge of the religious duty of pilgrimage, they take care to provide themselves with such commodities as will sell well along the way. On leaving Damascus they load their camels with materials of cloth and cotton, and other European manufactures, for which they find a good market throughout Arabia, and on returning from Mekká they carry with them, coffee and spices, cloaks from Baghdád, and Persian caps or Indian swords and daggers, all of which commodities are comparatively rare, and are in great request in the western parts of the Peninsula. There is besides, during these days, a great conflux of Bedawies, gathering in the village from the adjacent desert, and thus these small and during the rest of the year, generally very dull places on the pilgrims' way, present the aspect of the most stirring and crowded fair in Europe. All things which can be disposed of, are exhibited for sale or barter; every one is absorbed in speculations of traffic and profit; the desire for which is so strong with the villagers as to check even the hospitality, that cardinal virtue of the Arabs: they have no scruple in taking money for the fresh water which the only excellent and abundant spring, called Angâsé, supplies them with. But it must be borne in mind that this traffic with the pilgrims is the main source of their subsistence, and the greatest part of the inhabitants of Ma'ân do, in fact, in these four fair-days gain enough to suffice for the support of their families during the rest of the year.

With the water of Angâsé, about a score of gardens are irrigated in Ma'ân. Amongst the different fruit trees cultivated here, the pomegranate is particularly renowned as the best in all Arabia, and as its fruit is much coveted by the pilgrims, and is in the whole East, regarded as a medicine against liver complaints, stores thereof are laid up and kept in reserve for the year; but the date palm does not flourish here, notwithstanding the endeavours of the inhabitants to grow it. The water is raised by a single man from the spring in an open leather bag, the same as used in Upper Egypt under the name of Shadoof, and is increased by a stream, coming about half an hour's way from the N. It is led in small rills over the gardens, and part of it is gathered in a great basin, where the inhabitants occasionally bathe and make their ablutions for prayer. Besides the spring there are plenty of wells, and some yards' digging is sure to bring forth water in almost every place. Corn is also cultivated on the plain around

* Probably Mausim, *i. e.* season.—R.

the village, also in the gardens between the trees and vines, and in good years the crop is nearly sufficient for the wants of the inhabitants; but if the season has been rainless, they take their supplies from Ghazzé and Al'akabá, which latter place also provides them with rice. This is, in the western parts of Arabia, generally Indian, brought from Giddá and other ports on the eastern shore of the Red Sea. The Egyptian rice, which from Dumi'ât is brought over Ghazzé and other Mediterranean ports into Syria, is, though regarded as better, on account of its price, extremely seldom found in the interior of Arabia.

There is one old castle (not two, as stated by Ritter, 'Erdkunde,' xiii. 430), which the inhabitants tell us was built by the Turkish Sultan Suleiman; but for want of necessary repairs it is now decaying and uninhabited. So it was at least this year; but in 1848, some men of Ma'ân, whom I met in Tebook, informed me that the Pâshâ of Damascus had lately sent there a Turkish officer with a Christian secretary, and that part of the old building had been fitted up for his accommodation. In contradistinction to the other stations on this route, there had, until then, been no commander of the castle and the village on the part of the Turkish government in Ma'ân; the management of their own affairs, and the care of providing the pilgrims' karawân with necessaries, having been left to the inhabitants themselves, who did, I feel disposed to think, all the better for that; though I cannot deny that mutual envy and paltry pride between the litigious sheïkhs of the different clans of the village, very often nourished petty disputes and quarrels among the inhabitants. The report of these occasional dissensions was brought to the Turkish Pâshâ of Damascus by one of the sheïkhs, who portrayed them in very bad colours; and it was upon the request of that sheïkh that the Pâshâ sent his officer to Ma'ân, who, under pretext of checking the disturbances, united the different clans under one common chief. Time will show whether it be to the benefit or detriment of the village, which seemed to me to be not only one of the greater and wealthier places in this part of the desert, but also in a fair way of increasing in welfare and opulence. The principal artisans in Ma'ân are a brazier, a blacksmith, and an armourer, all emigrants from Hebron; and the only literary man, the Imâm of the place, who had been educated in Alkâhirá, was also a native of the town. The inhabitants are, without exception, of the orthodox sect of Aboo Hanîfá, and are very particular in observing the ceremonies of their religion, though as ignorant of science in general, and as unversed in Arabic literature, as the other inhabitants of the desert.

At a quarter of an hour's distance N.N.E. of Ma'ân there is another small village or hamlet, called Alshâmiyé* or Alnaghârá,†

* The Syrian.—R.

† The cavern.—R.

containing about 20 families, also of Syrian origin. It is situated on a hill, at the foot of which some gardens are irrigated by the tepid water of a running and abundant spring. It may be regarded as a quarter of Ma'ân, although its inhabitants are of other tribes, and are quite independent of the sheïkhs of the other part. Besides the architecture of the houses, the very form of the clay-bricks of which they are built, the manners of the inhabitants, their way of life, their dishes, their horticulture, and the fruits of the gardens, all remind us of Syria; while the absence both of olives and palms, the groves of which give such a delightful aspect to the villages of Syria and Negd, places Ma'ân on the very limit between these two lands. There is another peculiarity in the flora of Ma'ân, which consists in a very useful desert plant, called Samh, which is said to grow only where rain has fallen during the time of the Pleiades,* and to grow nowhere but in that part of the northern desert of Arabia which extends between this village and Algawf. It is a pod-plant with a large pericarp, containing a great quantity of seed. The pods are gathered and soaked in water until they open and ascend to the surface, while the seed settles. This done, the seed is dried in the sun and ground to flour, of which a well-tasted, though somewhat indigestible bread of a reddish colour, besides other dishes, is prepared. Bedawies of the Sînâ Peninsula and the inhabitants of Muweileh told me that this plant also grows on the island of Teirân, in the Red Sea, but I never saw nor tasted it except in Ma'ân and Algawf, where it is much used as a very nutritious aliment, especially if kneaded or boiled together with dates. In Negd, where the flour of this plant is sometimes brought from Algawf, it is regarded as a delicacy; but the Sherârât Bedawies, in whose land it grows in particular, are not fond of it, and exchange it in great quantities with the villagers for other food. Another species of the same plant, with the same qualities, is in Muweileh, called Da'â.

The principal Bedawy tribes in the neighbourhood of Ma'ân, with whom the inhabitants are most solicitous to maintain friendly relations, are, in the first place, the Sherârât, regarded as the original masters of this village and Algawf, and living for the greatest part in this desert and Wâdî Sirhân: secondly, the two 'Enezé clans, Ruwalá and Nâif; Benoo Sakhar, keeping to the villages of Shawbak and Alkarak; Huweitât, and other tribes, living on the eastern descents of the Sherâ chain. Some of the inhabitants possess also gardens and vineyards in Wâdî Moosà, which they cultivate under the protection of the Bedawies who, in partnership with fellâhs, live in the place.

On the 5th of May I left Ma'ân in company with one of its

* *i.e.* when they rise immediately after sunset; for rain falling then, they say, brings great abundance.—R.

most respected sheïkhs, called Ahmad Alkubbâ. He was a dealer in the very profitable trade with camels, of which animals he yearly bought upon credit a large quantity from the Sherârât Bedawies, who are renowned as possessing a very good breed of these animals. These he brings to the capital of Egypt, where he is sure of making his profit of them. It was for such a voyage to the Bedawies that I found him preparing on my arrival at Ma'ân, and as his way led to the neighbourhood of Algawf, he promised to take me there before he commenced his mercantile transactions with the Bedawies. But as he at present possessed only one camel, which he mounted himself, he had, as villager, no right or power to protect me against his brother-tribes, though sure of his own safety among them, and we had therefore first to look out for a third companion, from whom to obtain both protection and animals. Such a person we hoped to find easily among the nomads of the Sherâ chain, and it was to them we consequently first directed our course.

The plain, which surrounds Ma'ân on all sides, is a sterile and desolate desert tract, of a hard sandy soil, covered with small dark stones for about one hour's march. Then commence a number of valleys with a scanty vegetation, where the inhabitants pasture their small herds and search for fuel. After a march of 5 hours in a N.N.W. direction from the village, we arrived at a spring called Udhruh, whose clear and abundant water is collected in a large pond at the foot of an elevated hill, richly covered with soil and verdure. On the top of this hill stands an old, tolerably-well preserved tower of a circular form, and below, at the very foot of it, is another quadrangular one, now half decayed. Opposite to the hill, on the other side of the pond, there are extensive ruins of an ancient fortified place, surrounded by a quadrangular wall, the length of whose sides I estimated at about ten minutes' walk. This wall, which is built of large hewn stones, cut out from the surrounding limestone mountains, is about 12 feet high by 2 in thickness, and is still very well preserved; but the interior presents nothing but a mass of rubbish, heaped up on the solid vaults, upon which the houses seem originally to have been constructed. The curvature of the arches of these vaults, as well as the hewn stones of which they are built, reminded me of Syrian towns and Roman architecture; but during the short time of half an hour which my guide allowed me to stroll about in the ruins, I could find no traces of inscriptions or other marks. He asserted that these ruins were the remains of a former mighty Christian city, built long before the time of his Prophet, and that immeasurable treasures were interred beneath them, asking me if I knew no spells by which I could call them to light. The two towers, he said, in ancient times had served for

an aqueduct, though that on the top of the hill, on account of its position and construction, seemed to me likely to have served for the purpose of a watch-tower, whence to keep a look-out over the vast desert plain extending far and wide on its eastern side. Extensive corn-fields were cultivated around the spring and the pond by some families of nomad fellâhs, many of whom had lodged themselves in the vaults of the ruined town. The verdure was fresh, the growth excellent, and the water of the spring was limpid and sweet.

Udhruh is mentioned by Aboo Alfedà, only as a town in the Sherâ mountains, together with the town of Mâb in the district of Alkarak. In Alkâmoos it is stated to be a place close by the side of another Syrian village, called Garbâ, but without any other information. The latter name I never heard mentioned amongst the present inhabitants. Ritter also names this place in his 'Erdkunde,' xiii. 380, upon the authority of Suiooty, as a frontier town in Syria, in the neighbourhood of Balk (read Balkâ) and 'Ammân, but spells it "Adsroh." A march of 1½ hour from Udhruh in a N.N.W. direction brought us to an encampment of Huweitât Bedawies, by whom we were received for the night.

On the 6th we followed for 3½ hours the course of valleys, running N. and S., through undulating and hilly declivities of the chain, passed some tents of migratory fellâhs, and then turned in a N.E. direction into another valley, called 'Aleimá, where we were at a distance of about 2 hours E. of Shawbak. After a march of one hour in this valley, we issued upon the great, open plain of the desert, over which a march of 3 hours in a N.N.E. direction brought us to the ruins of an old castle, called "Khan Alzebîb,"* which my guide told me had formerly been a station on the pilgrims' way, built by Sultân Suleimân. Now it is occasionally used by Bedawies as a stable for their camels and sheep. The plain between Shawbak and this castle is intersected by a valley, called Nagil, running from W. to E. In 1½ hour from this we reached an encampment of one of the most powerful families of Huweitât, called the children of Ibn Gâzî, a manner of denominating clans and families very often used among these and other degenerate Bedawies of our age, but never employed in the interior of the desert, or by Arab genealogists.

On the 7th we reached, after a march of 2⅔ hours over open desert plains in a N.E. direction, a low hill, called Shagaret Altayâr, where very remarkable traces of former habitations were seen in decayed walls and ruins of small buildings of bricks. Furrows, drawn in the soil as if by a plough, seemed to denote that the hill had been cultivated even in our times, though I could

* The Khán, or Káravánsera of Raisìn.—R.

see no recently sown fields. After a march of 2¾ hours from this, we dismounted at the tents of a tribe of Huweitât, called after the name of their sheïkh, the children of Ibn Thiiâb.

On the 8th we arrived, after a march only of 3 hours, at the tent of Ibn Gâzî himself, who is the chief sheïkh of the Huweitât in this part of the Sherâ chain. He is a cousin of Husein bnu Gâzî, who governs those families of Huweitât, that live in the neighbourhood of Al'akabá as far down as Alwegh, along the shore of the Red Sea.* Half an hour from this sheïkh was encamped another, called Makbool, the head of the 'Umrân tribe, who are very intimately allied with the Huweitât, and by some regarded as a portion of them. Half an hour farther on to the N. we were hospitably received in the tents of Almas'oodiyîn, a family of the Hegâiâ, whose sheïkh was called Sâlim bnu 'Akir. Three hours from this was encamped another branch of the Hegâiâ, called Almaghârî, with whose sheïkh, 'Abdallah-bnu-Huweishid, we passed a day. Half an hour from this we put up at the tent of Husein Alsawà, who, though as yet a young man of only 18 years of age, was the great sheïkh and chief of the numerous tribe of the Hegâiâ. We were here at a distance of about 3 hours E. by S. of the village of Altafîlé, of which the Hegâiâ call themselves the masters and protectors, on account of the Khâwé tax the inhabitants pay them. For the greatest part of the year the tribe lives in this neighbourhood, and most of their sheïkhs and mightier men are allowed to keep their own warehouses in the village, where they put up, in the spring, their larger state-tents and other commodities, with so much of their provisions as they conveniently can spare, when they remove to more distant parts of the desert.

The chain, through whose eastern descents our way had led from Ma'ân, is here known by no other name than the mountains of Sherâ', or, as it is pronounced by the present inhabitants, Sheráa; but in Negd I sometimes heard it called Al'awârid through its whole extent. According to the present inhabitants of these parts of Arabia, the name of Sherâ is restricted only to that part of the main chain, which from Wâdî Lithm extends northwards up to Syria. The southern part, as far down as to Higr and Wegh, is called Alshefâ, or the mountains of Altahamá. Here, as in other parts where I had an opportunity of observing this chain, it descends on the western side with steep, often perpendicular walls towards the shore of the Red Sea, the gulf of 'Akabá, and the

* The word *ibnu* or *bnu* (son) is now pronounced by almost all Bedowins *abun*, and when followed by any of the so-called *solar* letters (i.e. the dentals, sibilants and r) the *al* loses its *l*; so that Ibnu Alrashid is vulgarly pronounced Ibnu-r-rashid. Hence the frequent mistake of European travellers, who write Abu Gází (the father of Gází) instead of Ibnu Gází (the son of Gází).—R.

valley of Al'arabá; but merges, on its eastern side, with a gentle and insensible slope, into the sandy deserts of Central Arabia.

The Sherà chain, which principally consists of granite, is sterile and naked; the parts, which contain more limestone, are better watered and more or less covered with a crust of soil, which, if more carefully cultivated, would no doubt show the same fertility as the more northern parts of the chain in Palestine. The number of caverns and grottos, in which the Palestine chain abounds, commences here; and they very often serve as domiciles for the nomads, or as stables for their herds, though they are not so large or frequent as in the northern parts. The present inhabitants affirm that these mountains in former times, when a Christian population inhabited them, were highly cultivated, all covered with corn-fields, orchards, and vineyards; and the evident traces of an old extensive culture, everywhere met with, seem to confirm their assertion. The present cultivation is very poor and neglected, and just sufficient to make the traces of the old, visible. But the wild vegetation is luxuriant and varied, and the valleys and hills abound in good pasture-grounds, where, among the most varied desert-plants, the species of wormwood—so much prized by the Bedawies, and so much celebrated by ancient poets under its still current name of Shîh—grows in the greatest abundance. The pure atmosphere on the lofty mountains, refreshed as it is by the strong odour of aromatic herbs, makes the air of Sherâ one of the best and most salubrious I ever breathed, and highly invigorates the originally strong and healthy constitution of the inhabitants. Besides Huweitât, 'Umrân, and Hegâiâ, who, as we already have seen, are the principal nomad tribes living in these parts of the chain, I found a great many families of Sherârât, who, flying from their homes in Wâdî Sirhân, had come to seek refuge in these mountains from the continually increasing power and gradually extending predatory expeditions of the Shammar. I met also with single families of Benoo Sakhar temporarily residing among the Hegâiâ, and here and there some poor families of Ma'âzé. The Huweitât and Hegâiâ are, without contradiction, the largest and mightiest tribes in this part; the others, who live here intermingled with them, being of no importance, and totally absorbed by these two. Those branches of Huweitât that live in this part are unanimously regarded as the mightiest and noblest of that widespread tribe, which, in fact, may be said to possess all the mountainous district of the Tahamá and Sherâ chains, with the lowlands of the Red Sea and the 'Arabá valley, from the harbour of Wegh up to Tafîlé. Respecting the origin of this tribe I made very particular inquiries among themselves, as well as among other Bedawies and townspeople; but though all agree in

their having originally descended from fellâhs and settled villagers, no one could tell me from whence they first proceeded into the desert, or when and for what reason they came to exchange a settled life for a nomadic one. In Arabic authors their name even does not occur. In their manners and language, as well as in their features, they differ much, not only from the Bedawies of the interior of Arabia, but also from the Tuwarâ of the Sinâ peninsula and other neighbour tribes, and agree, which Burckhardt noticed, in their physiognomy with that of the Egyptians. The resemblance is obvious, so that it may be conjectured that they at some time or other have emigrated from Egypt. It is true, it is a very rarely observed circumstance, that Arabs, once retired from nomadic life and settled in fixed abodes in fertile and cultivated lands, afterwards return to the desert and to the eventualities of migratory Bedawin life; but, nevertheless, I have witnessed myself some instances of such a return in families and individuals. When living, during the spring of 1848, with the Benoo 'Ukbá tribe in the environs of Muweileh, I met with a man of that tribe, who, born in an Egyptian village of the province of Alsharkiyé, of parents of Benoo 'Ukbá nomads, immigrated there, had been educated amongst fellâhs, and acquired their dialect, and to a certain degree also the peculiar cast of their features, so as not to be recognized as an offspring of Bedawies. He had then come over to his migratory relations, in order to make arrangements for the final removal of his family to the desert, from the Egyptian village where they had been settled. I have seen other instances of the same kind in Mesopotamia when with Shammar Bedawies, who, after a long residence in that land, had finally returned to their original home in Negd. This may also have been the case with the Huweitât. Remains of some old Arab Bedawy tribe, immigrated in Egypt and gradually transformed there into fellâhs, or, which appears more probable, the original cultivators of the Nile-valley, might by some political troubles have been compelled to leave their native soil, and seek a refuge in the inaccessible mountains of Sherâ.

Even their name seems to point to their origin from fellâhs and villagers. Huweiti signifies an inhabitant of walls, i. e. houses, and exactly corresponds with the name of Ahl Heit, by which nomads always and in every part of Arabia designate the townspeople in contradistinction to themselves, whom they call Bedoo, i. e. nomads, or Ahl Sha'r, i. e. inhabitants of tents. Be this as it may, the bulk of the tribe is still leading in Egypt a half nomadic, half agricultural life; and on the eastern side of the barrier mountains of Arabia their name is scarcely known, or never mentioned, by the genuine Bedawies, but with that contempt the nomads always entertain against fellâhs. Except those

families that live in the neighbourhood of Tafilé, the whole tribe is more or less under the sway of the Egyptian Pâshâ, and seems to bear its vassalage without objection or murmuring. The chief sheïkh of those living in Egypt is called Ibnu Shedîd; he lives for the greater part of the year in the capital, under the immediate eye of the Pâshâ, who has granted him possession of great domains in the province of Alsharkiyé. The Egyptian Huweitât are exclusively, or at least principally, devoted to husbandry, and those who are still migratory take to such avocations as soon as they can. The latter generally entertain friendly relations, not only with the different branches of their own tribe, but also with all other Bedawies nomadizing in the Sherâ chain and in the lands west of them, as the Teiâhâ, the Tuwarâ, and the Ma'âzé, of whom some families generally live in the desert between 'Arabá and Ghazzé. Towards the end of the year 1847 a feud arose between the two chiefs of the sheïkh family of Gâzî, on account of some petty thefts committed by the 'Akabá Huweitât upon the camels of the others, and a wearisome war threatened to break out between the two cousins, but after some paltry robberies and mock hostilities on each side, they were reconciled by the intervention of the neutral kindred tribe of 'Alâwîn.

The Hegâiâ, on the contrary, are generally upon a hostile footing with the Teiâhâ; and it is in consequence of this that the latter, serving as guides for travellers, dare not enter Hebron but by stealth.

On the other hand, these tribes are in open hostility with 'Enezé, and other Bedawies on the eastern side of their mountains, and very often attacked and taken unawares by them in their very homes. When I was with the 'Umrân tribe in Wâdî Dalâghá, parties of 'Enezé horsemen were continually to be seen lurking about on the very confines of the chain, and almost every hour an attack was in expectation from them on the families living in the neighbourhood of the spring of Bastá. Shortly before my arrival among these nomads, there had been a battle fought on account of some pasture-grounds between the Ruwalá and Huweitât, in which many lives both of men and horses were lost.

Except the clans that live in the neighbourhood of Tafilé, the others very seldom venture on predatory excursions against hostile tribes, as they do not possess the character of genuine Bedawies. But the poor fellâhs living dispersed among them in the Sherâ chain, and the miserable Heteim tribe, struggling for a scanty subsistence as fishermen on the shore of the Red Sea, in short, all over whom they can domineer, feel the full weight of their oppression and extortion, thus showing a cowardly mind, which contrasts greatly with the high and chivalrous spirit of the true sons of the desert.

The Hegâiâ are apparently of a purer and more unmixed origin, and show in their countenance, as well as in their manners and character, a greater approach to the genuine Bedawies, than perhaps any other tribe in these parts, though their name seems to be wholly unknown to the Arab authors, in whose works I have had an opportunity of searching for information of them. They appear to be a rich and mighty tribe, to judge from the abundance of horses they possess, which is always a criterion of the opulence and power of Bedawies, and they frequently go out on warlike expeditions in the desert of the interior. The booty they collect from such expeditions is very easily disposed of in the neighbouring towns, and their horses are in general valued and in great request in Syria and Egypt.

Besides the nomad inhabitants of these mountains, there are many other tribes and families of Bedawy fellâhs, who cultivate corn, and sometimes also the grape and other fruits, wherever there is a supply of water sufficient to render the soil productive. They live—very few in Wâdî Moosà excepted—all in tents, and change their abodes from place to place, according as the cultivation and harvest of their fields or the pasture of their herds require. They are despised and illtreated by their Bedawy neighbours, to whom they are forced to pay a heavy brother-tax (khawé) without being thereby freed from other contributions of every kind. I have often seen how haughty Bedawies have driven their horses and camels through yet unmown fields, permitting the animals to feed on the corn without any check. Though peaceable cultivators they always wear some weapon or other, as does in fact every person in Arabia, and take part sometimes in the feuds and expeditions of their brother Bedawies; but too few and weak to make head against their proud oppressors and to turn their weapons against them, as very often the fellâhs of the Syrian villages do against theirs, they silently submit to their tyranny. When in their tents they are usually seen doing some handiwork, as repairing their weapons or making utensils and furniture, with which they are generally better provided than Bedawies; and though their herds and their means of subsistence be very inconsiderable, and their circumstances anything but desirable, I often found in their homes more prosperity and comfort than in those of their masters. They also showed a stronger religious feeling, and a greater desire to learn the ceremonies and doctrines of their creed, than most of the inhabitants of tents; and as I had assumed the character of a learned Muslim sheïkh, they very eagerly inquired of me about these matters. But not only in their manners and sentiments do they contrast with their migratory neighbours; in their features also a different origin is to be traced, and their type is most evidently Syrian, but often

with a very prominent Jewish cast. I regard them as a scanty remainder of some of the old Jewish or Nabathæan aborigines of the land, though I am sorry to confess having neither found sufficient information respecting this in Arab authors, nor gathered myself, during my short sojourn in these mountains, facts enough to form more than a conjecture.

Here was the limit for the Wahhâby dominion and the power of its chief, Ibnu Sa'ood, which, for aught I know, spread over all northern Arabia and Negd, but never surmounted the Sherâ chain, whose nomadic, as well as fellâh inhabitants were never forced to pay the Zakâ tax nor to embrace the new doctrine. The Bedawies of the district, particularly the Huweitât, are totally ignorant of all that concerns religion, and quite indifferent to its duties, as are generally the nomads; but the fellâhs perform strictly the outward ceremonies, as the ablutions, the five daily prayers, the fast (Ramadán), and profess to follow the orthodox sect of Aboo Hanîfá, which is prevalent in all Syria, though they are but little versed even in its most fundamental doctrines, and wholly destitute of teachers to instruct them, and satisfy their desire of religious instruction.

The scanty notices which Arab authors give us of this land, all tend to confirm the assertion of the present inhabitants, that in former times it was in a more flourishing state and much better cultivated than at present. They describe it as a well-watered land abounding in trees and fruits, of which the vine and the sugar-cane are especially named as cultivated with success. Every author asserts that, at his time, it was inhabited by fellâhs, from which the inference may be drawn, that the Bedawies, until a comparatively recent period, did not possess these mountains; as, in point of fact, peaceful cultivators never thrive in a land where nomads hold the sway. As I have mentioned before, the name of Sherâ is by the present inhabitants given only to the northern part of the chain; but some of the older geographers give it as the general name of the whole chain, on the line from Iemen up to Syria. Besides the still existing towns and villages, which all are mentioned and briefly described by Arab authors, there occur in their works a great many others quite lost to modern geography, of which nothing but ruins, often under other names, have survived the all-destroying Bedawy usurpation of the land. Among these, they mention a village called Alhumeimá (*i. e.* the little hot bath), which they place opposite to Shawbak, at one day's distance from that town, on the west side of Wâdî Moosà. This place may perhaps be identified with the present Elgî, which name, though not very common in our days—the whole valley being generally called Wâdî Moosà—is probably the Arabic pronunciation of the Greek

Γέα, which by Stephanus Byzantius I., p. 200, is named as a town near Petra. In Elgî I was told that corn-fields and vineyards were irrigated by fellâhs with tepid and fetid water, that, when stagnating in ponds, emits foul and unwholesome vapours, which often cause fevers among the inhabitants. This and other thermal waters, in which these mountains abound, are sometimes successfully resorted to by the inhabitants as a cure for different diseases.

On the 18th of May we left the last encampment of Hegâiâ, in company with three men of the Sherârât tribe, who, leaving their families in this part, where they had resided for some years, were now going to convey four camel-loads of wool to Algawf. Having followed for about one hour a valley down to the foot of the mountains, we issued upon the extensive waste of the Syrian Desert (Bádiyat al Shám). We were here on the edge of that plain, on the limit between the mountains and the desert, at a distance of about 4 hours E. by S. from the village of Tafilé. Taking a full easterly direction, we commenced to cross a tract, the most desolate and sterile I ever saw. Its irregular surface is, instead of vegetation, covered with small stones, which, shining sometimes in a dark swarthy, sometimes in a bright white colour, reflect the rays of the sun in a manner most injurious to the eyes. We had made a very accelerated march of 4½ hours, when we saw the castle Alahsâ or Alhasâ bearing N. from us, at a distance of about one hour. It is a station on the pilgrim-road, containing a well of very bad water, as my companions asserted, and a garrison of only a few men. A march of 5 hours more, through the same desolate tract and in the same direction, brought us to a pool, a sheet of rain-water, which though shallow, was extensive. It is called the pond of Bâ'ig, and is perhaps the same which in our maps is generally laid down under the name of Bair. It is situated in a flat valley of sandy soil, where the rain-water, gathered in the pond, has produced some verdure and shrubs. If the rain has been abundant, it generally contains water the whole year; but otherwise the pond is dry in the first summer months. When we were there the water was thick, and so muddy as to make it hardly drinkable.

On the 19th we left the pool, with whose loathsome water we nevertheless regarded ourselves as fortunate to have filled our empty skins, and followed for a short time the course of the valley. But we soon entered again the waste and desolate land, which had been intercepted by it. After a march of 4¾ hours from the pool, we passed low solitary ranges of limestone, and continued our way for 6 hours more before we made a halt for the night.

On the 20th we made an uninterrupted march of 15 hours through the same desolate country, which, notwithstanding the absolute sterility and total dearth that prevails in it, is here and

there intersected by narrow streaks of sand, that, marked out by the winter torrents and laid bare from underneath the stones, produces a crippled vegetation of desert herbs, which, dry and sapless as they were, yielded us fuel for the preparation of our frugal meals and pasture enough to support our animals.

On the 21st our march was 14 hours, and at sunset we reached some wells called Sudei', whose water was bitter and brackish to such a degree, that it was impossible to quench our three days' thirst in it. The Bedawies said that it was generally sweet and good; but as there were at present no nomads in the neighbourhood, who came to draw water there, it had become foul and stagnant for want of outlet and from the saline dust blown by the wind from the surrounding desert into the wells.

On the 22nd a march of 4 hours brought us to some other wells, called Weisit, whose water but very little differed from that of Sudei'. Here the land totally changed its appearance. Instead of the hard mountainous ground, strewn over with small loose stones of a swarthy colour, and with solitary naked peaks and ranges of sand and limestone, rising here and there above its level, and occasionally showing scanty streaks of vegetation, the tract here began to be covered over with a deep and soft sand, undulating in hillocks and tolerably abounding in verdure. The waste we had behind us is generally called by Arab geographers the Syrian Desert, in common with its northern continuation, extending between Syria and Mesopotamia; but the Roman name of Arabia Petræa, or Stony Arabia, which it so well deserves, has, for aught I know, no corresponding expression in ancient or modern Arab literature. It may be regarded as a large valley, commencing in the plain of Damascus, and descending as far down as Teimâ, where it merges into another plain, extending along the N.W. foot of the Agâ chain. On the western side it is bounded by the Sherâ mountains down to Higr; on the eastern by Wâdî Sirhân, on the border of which the wells of Weisit are situated; and its distant boundary to the S. is the high land of Nufood,* which rises like considerable sand walls above its level. It bears in our days no general name, but every part of it is designated by a special one, which, however, always is very vague and undefined. That part of this tract which we had crossed in this journey, is called Basîtá (the outstretched), and is said to be productive of the above-mentioned desert plant, named Samh.†

* Nufûdh, *i. e.* the "all-penetrating sand."

† In Iakoot's geographical work, the name of this land is written Buseitá, and placed between Syria and Irâk. It commences, he says, at a water called Amr (?), and extends southward to a place named Ka'bét Al'alam (signal gap). It is a level, flat tract, the author continues, strewn over with small stones of the most variegated colours, without water and pasture; of all lands the most destitute of inhabitants. Another author, Nasr, quoted in the same work, calls it a Desert

Being a land of the most absolute sterility, the Syrian Desert is very seldom, and then only for a short time, visited by Bedawies. Portions of the numerous tribe of Sherârât, who principally live in Wâdî Sirhân, are occasionally met with here on their passages to Ma'ân and the Sherâ mountains. N. of them spreads the tribe of Benoo Sakhar, up to Kerek and in the southern parts of it, where the valleys increase in extent and fertility: sometimes tribes of 'Enezé, as Fukarâ and Wuld Suleiman, take up a short abode of a few days. The slope of this tract is obviously S. and S.E., to judge from the course of the valleys and winter-torrents, as well as from the many steep descents the Syrian pilgrim-route, leading along its bottom, makes between Damascus and Higr, whereas there is no defile or eminence, for aught I know, to be ascended. From the wells of Weisit we took the direction E.S.E. by E. through Wâdî Sirhân, and made a march of 7½ hours before we halted for the night.

On the 23rd our march was 12 hours in an E.S.E. direction, and towards the end of the day we had passed through low ranges of sandstone mountains. My companions told me that there are many wells and ponds of water everywhere to be found in this

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between the land of the tribes of Kalb and Balkin (?), behind Gharâ (?) and A'far; and others place it on the road of the Tay tribe to Syria. The Ka'bet Al'alam is in the same work said to be an extensive plain S. of Albuseitá, visited during the spring by Bedawies on account of a species of grass, called Nasî, which grows there in great abundance. It is said to have its name from a mountain rising on its western boundary, on the road from Tebook. If this Ka'bét Al'alam could be identified with the mountain defile of the present Al'akabá Alshâmiyé (the Syrian declivity), it would exactly coincide with the southern limit of the land which in our days is called Albasîtá, in concurrence with the orthography of Kâmoos. Tabîk I also have heard mentioned as a part of this country somewhere N. of Albasîtá, but I have not been able to ascertain its position. Gadda and Ghadef, laid down as two valleys on the map of Arabia by Berghaus, were unknown to all the Arabs of whom I made inquiries. Another part of this country, called Hamad, I was informed was situated S. of Albasîtá, somewhere in the neighbourhood of Algawf, at the foot of, or perhaps rather on, the declivity of the sand-hills of the Nufood. This information was given me by Bely Bedawies of Alharrá. I am aware that in our maps of Arabia the tract between Syria and 'Irâk, N. of Wâdî Sirhân, is generally denoted by the name of Hamad or Hamâd, as written by Ritter upon the authority of the Moslim traveller, Joseph Almilky. On a journey, however, which I made in 1849 from Baghdâd to Damascus across that desert, I heard, among many names by which my guide denoted every different place and plain, none resembling Hamad, nor any common name for that extensive tract. This word, with others of the same root (*hamad*), is very often used by the Bedawies of our days as a common name for different places and tracts. For instance: Hamâdét Tebook, Wâdî Hamâdé, Hamâdât Alshâm, by which latter name the nearest desert E. of Damascus is designated. I have generally noticed it pronounced with the strong aspirate "Há," in which case it ought to have nearly the same signification as the "arva amœna" ("Sedei hemed") of Isaiah xxxii. 12. But as these words—"pleasant fields"—are oftener given as names to open flat plains—for instance, Hamâdét Tebook, upon whose barren and sterile soil no herbage grows—I would fain give the preference to those who write and pronounce them with the soft aspirate Há, which seems more correct, hamet and hamedá meaning "barren," "desolate."

tract; and that we, but for the want of rain last winter, would have met here with the Bedawy encampments of Sherârât every half-hour, though we had seen none during the whole journey. We rested for the night at some wells called Subeihá, around which a fresh verdure had sprung up. Besides thick palm-bushes and desert herbs of every kind, there was a tall, full-grown palm-tree, said to bear fruits, though fostered by no one.

On the 24th our direction continued E.S.E. along a low range of mountains, called Al'udheiry, to our left. After a march of 11½ hours we entered a valley called Alkhalà, whose E course between the mountains of Al'udheiry we followed for 2 hours more.

On the 25th we issued, after half an hour, upon an open, extensive desert plain, of hard stony ground, resembling the land of the Syrian Desert, and traversed it in an E.S.E. direction during 6 hours, after which we entered the mountain chain, which, under the name of Gâl Algawf, surrounds the circular valley in which the town of Algawf is situated. After a march of one hour on the crest of the chain, we descended to the bottom of the valley called Albatîn. Thus our march from the last encampment of the Hegâiâ, about 4 hours E. by S. of Tafilé, was about 53 hours across the desert of Bâdiiét Alshâm to the wells of Weisit, where Wâdî Sirhân * commences on this side; and from those wells 40½ hours to Algawf. I ought, however, to observe that the march, though performed on loaded camels, was very rapid, and sometimes forced, and that the soil for the greater part of the journey was level and flat, which highly facilitates the pace, and that, moreover, our animals were of the good Sherârât race, strong and well fed.

Wâdî Sirhân, through part of which we had passed, I was informed by Bedawies of these parts, commenced about two days S. of Damascus, and extended to about one day N. of Algawf. Here it is interrupted by the mountains of Gâl-Algawf, which, in fact, may be said to be the centre, or the *belly*, as the Arabic word Algawf signifies, of northern Arabia; but on both sides of the chain it continues stretching out its arms and ranges of sand-hills, thus joining the Nufood or Dahnâ desert, beginning immediately on the southern side of Algawf. It is not to be regarded as a regular valley, as it is laid down in our maps, but as a depression, undulating in hillocks of a soft loose sand, representing the same aspect and character as its southerly continuation in the Nufood, though in the latter tract the hills and eminences are generally higher and of a greater circumference. The sand of which these eminences are formed, seems as if wafted hither by the wind from the surrounding deserts, and first accumulated

* From Tafilé to Wesit 53 hours, and thence to Algawf 40½ hours = 93½ hours, or about 374 miles.—ED.

in heaps around the roots of the shrubs, and then gradually in course of time piled up to hills and mountains. Among desert lands it is one of the most fertile; and, if sufficient rain falls, the soil is all covered over with grass, herbs, and bushes. I have in vain sought in the Arab geographers for information about this country: even its name is not mentioned by them; and I therefore suppose it in former times to have been reckoned as part of the Dahnâ desert, as in fact it is, and the name, which it exclusively bears in our days, to be of a later date.*

The valley of Algawf has pretty nearly the form of a regular circle, surrounded on all sides by the chain of Gâl-Algawf, which rises, with almost equal height, about 500 feet above the level of the bottom. These mountains consist of sandstone, and descend with steep and rugged walls, partly covered with sand, towards the valley, but merge insensibly on the other sides into the sand-hills of the Dahnâ desert. Towards N.E. there rises, above the even crest of the chain, a terrace, which is distinguished by the particular name of Alhammâmiiât, and on the N.W. side the chain opens in a defile called Alfa'w, through which the path leads to Syria. On the W. side the circular form is interrupted by solitary peaks, jutting out with an equal height from the surrounding chain, and joining another lower mountain of limestone, which, gradually declining, slopes down towards the centre of the valley, where it vanishes in the sand. In the last slope of this calcareous mountain lies the town of Algawf, in a semicircle, whose chord from W.N.W. to E.S.E. measures about 3500 paces. Nearly in the centre of this semicircle, facing almost full N., there stands the old castle of Almârid, on a precipice of the limestone mountain, overlooking the town and the whole valley. This castle, though half in ruins, and uninhabited, seems to be the centre, around which the different parts and quarters of the town one after another have arisen. The diameter of the valley N.E. and S.W., in which direction it is a little the longest, I estimated at about 3 English miles. The soil, being a somewhat crusty sand, is generally sterile; and the remoter from the calcareous mountain, the more barren it is; as in that mountain only, the springs and wells are dug. The houses are for the greatest part built of sun-baked bricks, moulded in a rectangular form of about 8 to 4 inches, by 2 in thickness.† Every quarter is surrounded

* Al Jawf is mentioned in Hájí Khalifah's 'Jihan-numá,' p. 530, where he says the surrounding mountains are called the outer projecting sands, and are impassable without a guide.—R.

† Not, as stated by Ritter according to Burckhardt, 2 feet square by 1 in thickness. Ritter states the backs of the houses to be supported by the common wall, which surrounds the quarter; but that mode of building, very common in smaller villages of Persia, I never met with among the Arabs.

by a wall of the same bricks, which divides it from the contiguous quarters on both sides; but within this wall the houses are disposed in no regular order, being often separated from each other by intervening small orchards and deep pits, formed in course of time by digging up clay or sand. The streets are narrow and irregular, without any pavement whatever; and in every quarter there is an open place, where strangers, arriving without having any particular friend or acquaintance among the inhabitants, first let their camels kneel down. In this place also, the people of the quarter generally assemble in the afternoon to pass the hour immediately preceding sunset in conversation about their mutual affairs. Most of the houses are provided with a room, generally separated from the other buildings, which is called the coffee-room, where strangers are lodged and guests receive their daily meals and coffee. The orchards and palm-plantations are all laid out separately from the houses, at the foot of the limestone mountain, and extend more or less along the bottom of the valley. Each orchard is enclosed by a wall, dividing it from the others; and between these walls narrow lanes lead, serving as streets for the owners, and as channels for the water which night and day is led over the plantations from the springs. According to the extent of every orchard, part of this irrigation is allotted to it for a certain number of hours, which during the day are determined by the hours of prayer, and at night by the stars. As this irrigation, however, does not suffice for all plantations, every orchard contains generally one or more wells, which supply the defect of the springs. Water is easily found in this valley; nor is it so deep in the earth as in many other places in the neighbourhood, the average depth of the wells here not exceeding 10 fathoms. Besides the date-palm, which appears to be first here indigenous, almost every fruit, common to these climates, is cultivated in Algawf, though in small quantities, as figs, apricots, peaches, oranges, grapes, &c. The pomegranate, which in the villages along the Syrian pilgrim-road, and also in Negd, is cultivated with great success, does not thrive here. Vegetables are grown, but in very small quantities, and much less than in Negd. Between the trees in the orchards the inhabitants sow corn, the produce of which generally suffices for their wants, which is very seldom the case in other villages of the desert.

The town of Algawf, to which I never heard the epithet of Alsirhân (added to its name by Niebuhr and Seetzen) given by any Arabs of this neighbourhood, is by the Syrians regarded as the first place of Negd, and is therefore sometimes called the gate of Negd ("Bak el Negd"), but is by the inhabitants of the latter reckoned to belong to Syria. The town consists of 12

quarters, called Sook, whose inhabitants trace their origin from very different Arab tribes and villages. The Syrian character seems, however, to prevail as well in the physiognomy and manners of the people, as in the architecture of the houses and the cultivation of the gardens. The oldest stock of the population is obviously of Syrian origin and of the 'Aduân race, whereas the inhabitants of some of the quarters seem to have immigrated in very late times. It may also be observed that the inhabitants entertain a much livelier intercourse with Syria than with 'Irâk, and that the wandering tradesmen, who occasionally visit Algawf, exclusively come from the former country, the reverse being the case in Negd, where Syrians are very seldom met with. The different quarters of which the town consists are the following, commencing from the west:—

1. Algharb, divided into six smaller subdivisions, viz., Ashwân, Ibnu Huseiny, Sinnâ' Almar'y, Algafriyé, 'Ein ummi Sâlim, Ibnu Ka'ayid. All these subdivisions are situated at a short distance one from another in the N.W. end of the valley, and contain a population of about 100 families, of which the greater part living in Ibnu Ka'ayid (the largest "*sook*" of this quarter), Algafriyé, and Ibnu Huseiny, derive their origin from a tribe of Shammar, called Hamoolet Almunâsibé. The inhabitants of Ashwân are originally Ruwalá nomads of the 'Eneze tribe, and those of 'Ein ummi Sâlim are Bedawies, called Sirhân. The Sinnâ' Almar'y are all artisans from various towns of Syria and Arabia, who have settled here. The quarter of Algharb is apparently one of the latest of the town.

2. Alder' or Sook Ibn Alder', the most ancient part of the whole town, contains an old building of hewn stone, which, it is said, was converted by Khalífá Umar into a mosque and afterwards repaired by Ibnu Sa'ood in the beginning of Wahhâbism. Detached from this mosque, but close by it, stands a minaret, the only one in the whole town, erected upon the arch, which is built over the gate of this quarter. This is perhaps "the remarkable square tower built of huge broad stones," which Ritter supposes to be, after Joseph Almilky (Seetzen's authority), a kind of "obelisk," or, after Burckhardt, one of the "pyramids," mentioned to him by Turkish travellers in Aleppo, as existing in Der'iyé. For my part I could see nothing extraordinary in this building. It is one of those portals, serving throughout the East as gates to a town or a quarter, surmounted by a small square building with windows and loopholes, of which there is, especially in Cairo, one or more to be seen in almost every street. As the Islâm religion was afterwards introduced, and the portal was deemed the most suitable place from whence to call the faithful to prayer, a turret was built upon the gate in order to

make it like a minaret. Except this portal, now converted into a minaret, I saw no building which could be identified with the supposed obelisk or pyramid. In olden times the building, which may be presumed to have served as a Christian church, is said to have been joined by a subterranean passage to the castle of Almârid, which belongs to this quarter. This passage is now shut up and filled with rubbish and stones; but the place where it is said to have opened was still shown me in the castle. The walls of Almârid, which, by the people here, are said to have been originally twice as high as at present, are carefully built of large hewn square stones, in a style of architecture resembling that of the old castles in Damascus, and have still a height of from 30 to 40 feet above the precipice on which they stand. The principal entrance to the castle is, in our times, from this quarter along the slope of the calcareous mountain; but on the western side there is a narrow postern-gate, secured in former times, it is said, by a strong iron-bound door, which, in the Islamitic conquest of the place, Khalîfâ 'Aly is believed to have cloven with a single stroke of his sword. The inside presented nothing worth noticing, nor could I find any traces of inscriptions, nor did the inhabitants speak of treasures or other valuable things discovered in the ruins. Many of the private houses of this quarter are partly built of the same kind of hewn square stones as the castle and the mosque, whereas those of the other quarters, and of all villages in the desert, consist of nothing but sun-baked bricks. The population of Alder' is very mixed; but the main stock is said to have emigrated from the town of Shakrâ in Negd Al'ârid. Beni Der are mentioned by Ritter (Erdk. xiii. 347) as inhabitants of a valley in the Agâ chain called Hafl, who perhaps may be regarded as the ancestors of the present inhabitants of this "*sook*." Forced to leave their native soil, they may have followed the most convenient, and still generally used, route over Alkasîm to the two mountains of Tay, and from thence continued their way over Gubbé up to Algawf. Some families of a still older race, who call themselves Karârît, pretend originally to have come from Gubbé. These are, perhaps, a remnant of the Arabs mentioned by the author of Alkâmoos under the name of Kuroot, as belonging to the Kilâb, who are known formerly to have lived in these parts and probably also in Gubbé, where a quarter of the village still bears the name of Sook Alkilâb. The inhabitants of Gubbé told me, during my stay in their village, that these Karârît still possessed very ancient books, written in an unknown language, in which their genealogy and ancient history were contained; but I never heard this mentioned in Algawf, though I was very intimate with the sheikhs and the elders of the people. This quarter contains three abundant

springs, Alkubrà, Bard Zubeidá, and 'Ein Algamal. The total number of families living here amounts to about 130.

3. Sook Alsa'îdiyîn, or Alsarrâh, inhabited by five tribes, viz., Alsa'îdîn, Al'umar, Al'abbâs, Alsalmân, Alhaboob, of whom the four first mentioned derive their origin from the Syrian villages Alsarrâhiyé and Rakhâm, and the last from Bedawies called Mawâlî. Next to Alder' this seems to be the oldest quarter of the town. It possesses also a castle called Alkuseir, of a later date and built of sun-dried bricks upon the same rock as Almârid, right opposite and at only a short distance from it. It is said to have been erected as an opposing castle against Almârid, at a time when deadly feuds existed between the two neighbouring quarters. This sook contains a population of about 120 families.

4. Alrahîbiyîn, with a population of about seventy families, who are said to have emigrated from a Syrian village, called Ruheibá, which, according to the American traveller, Dr. Robinson, is situated in the land of Tahta, between Haurân and Nebk. This sook has a spring of running water called Al'aroos.

5. Al'alâg, containing forty families, which immigrated here from Altafîlé. A spring in this quarter is called Ghanarná.

6. Khadhmâ, so called after a spring of the same name, which rises in the centre of the quarter and supplies the water necessary for the irrigation of the neighbouring orchards. The population amounts to sixty families, who state that their ancestors in the sixth generation immigrated here from Wâdî Sirhân. As they have preserved the language and character of Bedawies purer than the other inhabitants of Algawf, they call themselves Bedoo or Nomads, in opposition to their neighbours, to whom they give the name of Karâwne, a word often used in Syria in the same signification as the Egyptian "Fellâh." Among the number of these families are ten of negro origin, called Mutawalladîn, who are to be distinguished from the other inhabitants by nothing but in their darker colour, and still apparent, though somewhat softened, negro features. There live also in the other quarters some families of these Mutawalladîn; but they are altogether not so numerous as those of Khadhmâ. They derive their origin from negroes bought as slaves in the market of Mekká, and brought as such to their purchasers' homes. Afterwards manumitted and married to wives of their own race, or sometimes, though very seldom, to Arab women, they have multiplied and spread over the desert, where they are everywhere to be met with both in the villages and in the tents of the nomades.

7. Aldalhamiyé was formerly a small quarter close to Khadhmâ, containing about twenty families of the same origin with the Sarrâh, with whom they were allied. But in consequence of an old feud with their neighbours of Khadhmâ and their allies, the inhabitants

of Algar'âwy, their quarter had, about 8 years before, been totally destroyed by the chief of Shammar, who, from his own territory of Gebel Shammar, where about the same time he had established his power, had come with troops to assist his relatives of Algar'âwy. He pillaged and demolished the houses and orchards, cut down the palms, and filled up the wells with stones and trees, leaving nothing to the inhabitants of Aldalhamiyé, but life, and liberty to seek refuge with their allies, the Sarrâh.

Besides these seven quarters, which are situated near one another in the declivities of the mountain in a nearly regular semicircle, there are five smaller ones lower down in the bottom of the valley.

8. Alkerâtîn, situated in the western part of the valley, and nearly midway between Gâl-Algawf and the interior mountain, contains only two families, allied with the inhabitants of Algharb.

9. Alwâdî is situated at the foot of a solitary mountain called Sabbá, which rises in a conical form on the other side of the valley, N.W. of Almârid, close by the side of Gâl-Algawf. It contains eight families of two different tribes, Dirbé and Menâhî, who are allied with the people of Alder'.

10. Ghuttî, N.E. of Almârid, in the bottom of the valley, contains two families allied with the Sarrâh.

11. Alsa'îdân, a palm plantation watered by a well, and belonging to a negro family, residing in Khadhmâ.

12. Algar'âwy, consisting of four families of artisans, who derive their origin from a tribe of Shammar, called Armâl, which emigrated from the village of Gubbé. In the feud which prevailed between Alsarrâh and Aldalhamiyé on one side, and Khadhmâ and this quarter on the other, Algar'âwy had been totally destroyed and its inhabitants driven from their own soil and demolished houses, to take up their abode with their allies of Khadhmâ; but afterwards, when the Shammar sheïkh had brought the town under his sway and settled the feuds between the different quarters, the Gar'âwy were allowed to clean out their wells and plant new sprigs upon the cut-down palms, and, at the time I left Algawf, they were ready to remove from Khadhmâ to their own rebuilt houses.

There are but very few traditions preserved by the present inhabitants concerning the ancient history of their town. They pretend that the origin of Algawf dates from the time of Suleimân, son of Dawood, and name as the year of its foundation 800 after Christ; an era I scarcely remember having heard mentioned anywhere else in the Islam world. This wise Israelite king, the mighty "dominator of all beings, men, spirits, and beasts," is in general regarded by the inhabitants of all northern Arabia and Negd as the first civiliser of their land, and the

founder of their villages and wells, which he is supposed to have built by the aid of spirits. By this they seem to denote that civilisation was originally brought to them from Syria, in opposition perhaps to the Arabs of Iemen, among whom, in consequence of the position of their land, and the greater intercourse they, in olden times, must have enjoyed with India and Abyssinia, quite a different civilisation may be supposed to have prevailed. Concerning the long space of time which has elapsed between Suleimân and Muhammad, the present inhabitants have nothing, but that their town bore formerly another name, viz., "Dawmát Algandal," by which it is still exclusively known by the Arab geographers. At the time of the first appearance of the Islamite prophet the town was governed by a man whose name the present inhabitants pronounce Alkeider, but which, in ancient authors, is written Alukeider. He professed the Christian religion, and resided in the castle of Almârid. But this word is used in a very vague and undefined sense for any remoter time, and the people are not certain themselves, whether it denotes an individual, or a tribe, or a reigning chief-family. The last sense seems to me to be the most natural, the more so, as it generally has the article. In his time the town is said to have had a greater extent; the orchards and palm plantations spread over a larger part of the valley, there was a greater abundance of wells and springs, and the whole was enclosed by a common wall. In fact there are still many traces of a former cultivation more extended than in our days. From time to time there are discovered subterranean aqueducts, built of hewn square stones of a most careful and excellent workmanship, which in former times perhaps served the purpose of gathering the rain into the wells, or of carrying the water from springs and wells, which have now disappeared. During my sojourn here, an ancient aqueduct was laid open in Alsa'îdân, which was so spacious that a man could stand in it almost erect, and which seemed to lead to the only well, existing in that plantation. As it was quite filled up with sand, there was only a small part of it opened as yet, and neither its source nor its termination had been ascertained. Others have been discovered in the town itself, leading to places where at present no traces of cultivation are to be seen. Ruins of decayed walls, built of clay and sun-dried bricks in the bottom of the valley, are said to be remainders of the wall with which Alukeider had surrounded his town. Various utensils are likewise often found by digging in the earth, such as large mortars of stone, resembling those in which, in our times, roasted coffee, everywhere in Negd, is ground, and for the cutting of which, the inhabitants of Algawf are still the most renowned artisans. These mortars are yet made here in great numbers, and are sold in Negd often for as much as 1*l.* each. Bellows-stands of the same

form as those used at present in Arabia by artificers, are also very often dug up; but these are cut out of one solid stone, whereas the modern ones are generally made of clay. I was also assured that ancient coins were sometimes found of as old a date as the time of Moses (!); but notwithstanding all the search I made for them among the inhabitants, I never found more than one old Fatimite gold coin; nor did I anywhere fall in with inscriptions or old writings of any kind.

Alukeider was vanquished and killed by the Moslims of the new religion, who entered here, as the present inhabitants state, under the command of 'Umar and 'Aly, when the Christian population was forced to embrace Islâmism. Of the following centuries the inhabitants have nothing to relate but feuds and dissensions between the different tribes and quarters, of which the town consisted. They are still in our days known for their litigious disposition among all their neighbours, who say that Satan will never die in the hearts of the people of Algawf. To this also, the old Arabic saying, cited in Alkâmoos, seems to refer, which calls the people of Almârid "obstinate," and that of Alablak (the old fortress in Teimâ) "overbearing." In the early times of the Wahhâbies, one of the generals of Ibnu Sa'ood entered the town with an army, and destroyed an old tomb in the quarter of Alder', which was adorned by a cupola, and respected by the inhabitants as the sepulchre of Dhoo Alkarnein. Having levied upon the inhabitants the Zakà tax, ordained in the Korân as one of the five fundamental dogmas of Islâm, he issued forth to other conquests, leaving a substitute to govern the town in the name of Ibnu Sa'ood. Learned Imâms, or Khatîbs, as they are called here and in all Negd, educated and instructed at the expense of Ibnu Sa'ood in Almedînâ and Der'iyé, were sent hither to teach the people the Islâm religion, purged and regenerated as it had been by the doctrine of 'Abdu-l-Wahhâb. The feuds and wars were extinguished, justice administered, public safety restored throughout the extensive dominions of Ibnu Sa'ood, and every one still remembers those times with enthusiasm. But when the power of the Wahhâbies fell before the Egyptian Pâshâ, whose troops occupied every province of Negd and Northern Arabia, except Algawf alone, the town reverted to its former state of confusion and discord, which lasted until 'Abd Allah bnu-r-Rashîd, after having strengthened his own power in Gebel Shammar, sent his brother 'Ubeid Allah to Algawf, in order to put an end to the above-mentioned hostility, which had arisen between Khadhmâ and Aldalhamiyé. This was about the year 1838, since which the town has been under the sway of the chief of Shammar, who, however, has no representative of his power residing here. Every quarter has its own sheïkh, who decides differences of smaller im-

portance; those of greater consequence being heard before the Shammar chief himself, who cites the parties to his capital Hâil, where, in a public assembly, the questions brought before him are discussed, in consultation with the Kâdî. The Zakà tax is collected by five men, elected by the Shammar sheïkh among the inhabitants of Algawf, and matters of religious concern are entrusted to private Khatîbs, whom the inhabitants of every different quarter elect among themselves. Of those that were educated in Almedîná, there is only one left in Khadhmâ; he is a native of Gebel Shammar, but all the others are from Algawf. Every quarter has its own mosque, where the daily prayers are offered, and the Friday sermon delivered. After the prayer of noon the Khatîb generally interprets some tradition of the Prophet, or some verses of Alkur'ân, or explains the Wahhâby doctrine of the unity of God, and the impropriety of rendering worship to saints, this being the principal point of controversy between the Wahhâbies and other Muslims. They all profess the puritanism of 'Abdu-l-Wahhâb, and call themselves Muwahhidîn, *i.e.* Unitarians, in opposition to other Muhammadans, to whom they give the name of Mushrikîn, *i.e.* those who associate with God, inferior beings as worthy of being adored by man. They regard the name of Wahhâbiyé, generally given to them by the inhabitants of the Turko-Arabian countries, as insulting, and never adopt it themselves. The Wahhâbies, however, do not constitute a sect of their own, but follow strictly the orthodox doctrine of the Imâm, Ahmad Alhanbaly, nor did the princes of the sheïkh family of Ibnu Sa'ood coin money in their own name. As in most of the Wahhâby villages, the youth are instructed in the dogmas and ceremonies of their religion, and the art of reading and writing is more general among them than even in the Turko-Arabian towns. Although noted for a litigious and harsh character among themselves, they are by all admitted to be very hospitable and civil towards strangers, and as regards myself, I must confess that even among the hospitable Arabs of the desert, I never met a tribe who surpassed the people of Algawf in that virtue, and none by whom I was better received. They are also renowned for poetical talents; and although the severe and austere Wahhâby puritanism condemns the song and the Rubâbá, (the only instrument in the desert), as impious and unbecoming a true believer, inasmuch as whoever enjoys poetry and music here, will not enjoy them in the life to come, I seldom passed a night during my sojourn here of about four months, but in the company of young people where a song was sung, accompanied by the monotonous, but charming instrument of the nomads. The natural gift of poetry and music is, however, so common among the Bedawies, that I can hardly say that the inhabitants of Algawf excel others in this respect. As to the statement of

Burckhardt, that men of Algawf sometimes wander into neighbouring lands as singers, I never found it verified here, nor have I anywhere in Arabia or other contiguous lands ever met with emigrants or travellers from this town. They seldom leave their homes except when called to Hâil for some reason or other, or when going to Mekká to perform the pilgrimage. Neither do they undertake warlike expeditions on their own account; but individuals sometimes partake in those of Shammar; nor are they in the habit of resorting, as do the inhabitants of Gebel Shammar and Alkasîm, to the neighbouring countries, in order to get their supplies of wheat and rice and other necessaries, but let their Bedawy allies of 'Enezé and Sherârât bring these articles to them from Syria and 'Irâk. As the irrigation of their orchards and palms for a great part is derived from springs and comparatively low wells, from which the water is easily raised, they stand in no particular need of camels, and there are but very few of the inhabitants who possess one or two of these animals, so indispensably necessary in Arabia. Instead of camels, bulls and cows are here used for raising water from the deeper wells, in hides of camels, wild goats, or antelopes. The cattle are here, as generally in Arabia, of a very small and poor race, and are never, but with the greatest reluctance, killed for food. All animals, be they camels or others, that are used for the irrigation are called Sawânî. Thus destitute of camels (the only means of conveyance and intercourse in the desert), the inhabitants of Algawf depend wholly for matters of trade and commerce on the Bedawies, whereas the reverse is generally the case in other villages of Arabia. Besides this, the feuds and intestine wars which, from the very remotest times, seem to have existed between the inhabitants of the town, must always have checked enterprise. If, moreover, we take into account the situation of the place, which, though certainly securing it from hostile invasions of foreign troops, is, in respect to commerce and communication, anything but favourable, we may easily conclude that Algawf must always have been a town of inferior influence in Arab history. Surrounded as it is on all sides, by a vast and waterless waste of sand, in which travelling is highly difficult; neither route, the Syrian, nor that from 'Irâk, leads through Algawf to Mekká, the gathering place for the Arabs of all times, and the cradle of Arab and Islam civilisation. Thus excluded from communication with the cultivated and civilised neighbouring countries, they were reduced to their own resources, which could never be great, almost the only produce of their poor land, which they could exchange for other articles, being dates. Olives are said by some Arab authors to have grown here, but in our days there are none of these trees to be seen, and I doubt whether the soil would suit them. Their few wants, besides what their own

orchards afforded, were probably supplied formerly, as now, by Bedawies, and exchanged for dates; or they were purchased by themselves at the yearly fair, which Alkalkashendy says was held here in olden times. The remoteness of Algawf from the more frequented roads, and the difficulty of communication, seem to be the principal reasons for holding a fair here. The dates of Algawf are of the most excellent quality, and are preferable in flavour even to those of Basrá and Baghdâd; and though they, for about four months, constituted my principal and almost only food, I must confess I never grew weary of them. There is a proverbial saying, that no dates are to be compared with those of Algawf and Teimâ; but while there is, strictly speaking, only one species in the latter town of an exquisite quality, every one of the numerous and different species which occur in Algawf is, almost without exception, the very best of its kind. Of this great number I noted no less than fifteen varieties, which are regarded as of superior flavour. They assign as a reason for the better quality of their dates, the circumstance that they in general give their palms less water than is given elsewhere. While the inhabitants of Negd act upon the principle that, the more the palms are watered, the more sugar the dates will contain, and consequently put them under water every day, the people of this town only irrigate theirs once in three or four days.

Though the inhabitants of Algawf pay the Zakà to the chief of Shammar, who receives the tax without being obliged to account for its expenditure, they are not freed from the attacks of the neighbouring nomads. Every quarter is tributary to one or more Bedawy sheïkhs, to whom they pay the brother tax, generally in certain quantities of dates. The principal tribes who exact this tribute, are the Sherârât and the 'Enezé tribe of Ruwalá, called also Kalâs, and of these more especially the two kindred tribes of Nâif and Sha'lân. These two powerful families live for the greater part of the year in Haurân, which district, among the nomads, is exclusively known by the name of Nukrát Alshâm; but during the summer they disperse in the extensive Nufood country, seeking pasture for their numerous herds of light-grey camels, in the neighbourhood of Algawf and the well of Alshakîk. Sometimes they go as far down as Alkasîm, and N.E. and eastwards as far as Algezîrá and the confines of 'Irâk, where they meet with kindred clans of their tribe. Many of the wealthier Bedawies live during the greater part of this time at their own expense in the town, and send out into the surrounding desert their herds under the care of a single herdsman, who returns with them every fourth or fifth day, in order to water them at the well. As soon as the dates are ripe, they gather of the fruit as much as they can exact from their brothers, and pack it up in large hides; ex-

change, for several articles of clothing, some of the oldest camels which are destined for slaughter, and retire to their homes in Haurân. The Sherârât live, as we already have seen, for the greatest part in Wâdî Sirhân, whence they spread to the Nufood, and sometimes to the Sherâ mountains. The principal divisions of their tribe are: 1. Alfuleihân, whose sheïkh, Alhâwy, is the chief of the whole tribe; 2. Aldhubâ'în, whose chief family is called Shooshân; 3. Alhulasâ, with the sheïkh Ibnu Da'aigé; 4. Al'azzâm, with a sheïkh named Shibly; 5. Alsuleim, whose sheïkh is Alduweiry. The Sherârât regard Algawf as their own proper town, and keep as near to it as they can. At harvest time they come hither in large numbers in order to exchange their cattle, wool, butter, cheese, and what quantities of rice they may have brought from other places. The principal articles, besides dates, which the inhabitants of Algawf have to give in exchange to the nomads, are various kinds of mats, tent-cloths, pack-sacks, all made of wool, and especially a kind of thick, warm, woollen cloaks called 'Abâ, or more usually "mishlakh," for the weaving of which they are renowned. These cloaks, though but of a very coarse texture, are strong and warm, and are taken as far as Mekká, where they, during the pilgrim-fair, are in great request. Their consumption of coffee is generally supplied from Mekká, over Gebel Shammar. All this trade is, of course, carried on by way of barter; money being extremely scarce here, as well as in most parts of the desert.

The people of Algawf imagine that their town is placed in the centre of the world, and call it therefore often "Gawf Alduniâ," which is to say "the belly of the world." And in fact, the distance from hence to the contiguous cultivated countries beyond the sands, which surround it on all sides, is nearly equal in every direction. Damascus in Syria, Nagaf or Mashhad 'Aly in 'Irâk, Alriiâd, the capital of Negd and residence of Ibnu Sa'ood, Almedîná in Alhigâz, and Alkerek in Palestine, may all be reached from Algawf in about seven days. The first mentioned town is generally known among all Arabs of the present age by the name of Alshâm Alkebîré, in the same manner as Cairo is called Masr Alkebîré, and if its old name of Dimashk be sometimes employed, it is seldom, and then only by learned men, pronounced thus after the orthography of the Arab authors; but by the common people of Algawf and Negd, as well as of Syria, it is invariably written Damshak or Dimshik. The Syrians say as a proverb, Alshâm Damshaká, by which they mean to express that Damascus is a clean and beautiful place and its inhabitants a neat and comely people; and, certainly, if any town in the East deserve this praise, it is Damascus. On the way to Damascus from Algawf, the following waters were enumerated by the inhabitants: Nabk (one day from Algawf in Wâdî Sirhân), Mureira, Ghurâb, Kurâkir, Alhâ-

zim, Azrak, Bisrá (a village in Nukrát Alshâm), Hureirá, Ruzdaly on the pilgrims' way, Al'awig, Damascus. On the way to Alkerek there are the following waters: Mabkoo', Al'uioon Albîd, Al'umry, Alhafâir, Alkitrân, Allugoon. The way to Alriiâd, which is generally followed, leads over Gebel Shammar and Alkasîm, and requires about 12 to 13 days; but the straight way through the desert will probably not much exceed 7 days, whereas Almedînâ can hardly be reached, across Teimâ and Higr, in less than 9. The way to Mesopotamia crosses the Nufood land N.E. of Algawf, and joins, further on, the route which the inhabitants of Gebel Shammar take on their frequent visits to that country; but, as I already have said, the inhabitants of Algawf very seldom go there. The present name of Algawf (belly), which never occurs in the Arab authors, seems only to refer to the form of the above described valley, which presents, as it were, the aspect of a *cavity*, sunk in a mountain chain, enclosing it on all sides. The surrounding land of the nearest desert, which may be said to belong to the place, is however not to be regarded as a *low-land*, through which Negd gradually slopes down to Syria, as seems to be the supposition of Von Hammer, quoted by Ritter (Erdkunde, xiii. 377), where he gives the Arabic word the signification of extended plains and low grounds in opposition to superincumbent mountain ranges. On the contrary, I cannot but regard the position of Algawf as relatively higher than that of Negd and the mountains of Gâl-Algawf, with the stony and mountainous tracts that surround them towards the W. and N., and as the highest point and, so to say, the crest of the whole northern plateau of Arabia. I likewise must contradict the statement of that great and learned geographer, viz., that the southern side of Algawf is more properly the mountainous part of it, whereas he assumes the northern side to be a comparatively low, flat land. The reverse is exactly the case. As we have already seen, the northern part of the chain rises with a more elevated terrace and extends W. or N.W. with the lower range of Al'udheiry. The northern descents of the chain consist likewise of more or less mountainous tracts for about one day's journey as far as Wâdî Sirhân. The southern and eastern parts of the chain are, on the contrary, somewhat lower, and extend no ridges to the Nufood land, but cease immediately with the edge of the valley itself. Thus there is no connection whatever between these and the two Tay mountains, which latter Ritter supposes by gradually decreasing descents to run into the imagined lowland of Algawf.

N.E. of Algawf, at a distance of 11 hours, is situated another town, called Sukâká, or Skâká, as it is generally pronounced with the "*u*" omitted. It contains an old half-decayed castle named Za'bal, and four quarters or sooks, viz., Al'umrân, Alsuheyân, Alhirkân,

and Alfeyâd. This place is by Iakoot reckoned among the villages, to which also Daumât Algandal belongs, and is said to be walled in, though not so well fortified as the latter. Its inhabitants are said to be inferior in strength to those of Daumât, and, though I had no opportunity of visiting the place during my stay in Algawf, I have reason to believe this account to agree with the actual state of the present inhabitants. Very frequently men of the place came to Algawf in order to consult me, as a doctor, for different diseases, and I found them all to be rough fellows with unpleasant, and for Arabia, unusually ugly features, and the general state of health in their place was said to be bad. Most of the diseases I saw were secondary and tertiary syphilis. The number of families living there may be estimated at about 400. Another small place, called Kasr Altuweir, containing about ten families, is situated E. b. N. of Algawf, at a distance of 8 hours. Between these two places there is a third, called Kârá, whose inhabitants, amounting in number to about twenty families, derive their origin from Dughmy Bedawies of the 'Enezé tribe. This also contains an old castle, known by the name of Almushrifé. All these three places, I was informed, are situated in an open flat land of harder soil, containing abundance of water and deep wells, and I therefore suppose the desert on this as on the N.W. side, for the distance of about one day more or less, retains the character of a mountainous land, intersected by ranges, shooting forth from Gâl-Algawf. They are all subject to the sway of the Shammar sheikh and pay him the Zakà tax, which is, however, gathered here by the same men as in Algawf.

The ancient name "Daumât Algandal," by which at present Algawf is exclusively known and mentioned by the Arab geographers, lives still in the memory of the inhabitants, and is said by them to signify a heap of large stones. If this be the true signification of the word, it may be supposed to refer to the above mentioned calcareous mountain, which rises over the plain of the valley, as it were, in the form of a heap. Some of the inhabitants asserted that the word "Gandal" signifies the particular kind of stone of which this mountain consists. Arabian authors do not agree with them in the signification of this word. They refer it to Dawm (written by others Dawmân, Dumâ, and Dawmâ), the son of Ismâ'îl, son of Ibrâhîm, or according to others, to Dawmât Anoosh (?), son of Shîth, son of Adam, and, as they differ in the orthography of the name of the founder, they also differ in that of the place itself, some pronouncing it Daumá, which is the pronunciation of the present inhabitants, others Doomá. Be this as it may, the renowned Ibnu Alkalby, quoted in the great geographical work of Iakoot, alleges that, when the

progeny of Ismâ'îl increased in Altahâmá, one of his sons, called Dawmâ, emigrated to the present valley of Algawf, situated at 7 days' distance from Damascus, and built a castle there, which he named after himself Daumá. Another author, Aboo Sa'd, quoted in the same work, says that the circumference of the low and depressed valley, in which the town is built, is five farsangs, and that a spring, rising at its western end, waters rich palm-groves and corn-fields. This spring may, perhaps, be identified with 'Ein Ummi Sâlim. The castle which the town contains, the same author informs us, is called Almârid, from the large and heavy stones of which it is built. Aboo 'Ubeidá, quoted in the same work, reckons the place among the villages of Wâdî Alkurà, and places it in the neighbourhood of the two Tay mountains, at a distance of 4 days from Teimâ, stating its inhabitants to be Benoo Kenâná, of the tribe of Kalb, and the two villages Skâká and Dhoo Alkârá (which is the proper way in which the present Kârá ought to be written) to belong to it. The place was surrounded, the author continues, by a wall, and within this wall there was, besides the strong castle of Almârid, also another built by the prince Ukeider, son of 'Abd Almalik bnu Abd Alhay bnu A'îâ (?) bnu Alharath bnu Mu'âwiyé bnu Khalâwá (?) bnu Amâmá bnu Salamá bnu Shakâmé bnu Shabîb bnu Ashîris (?) bnu Shuwei'ir of the clan of Sakoon of the tribe of Kinda. It was against Ukeider that Muhammad, whilst in Tebook, sent his general Khâlid bnu Alwalîd, informing him that he would be sure of finding the prince chasing antelopes in the environs of his town. And so it happened. When Khâlid arrived at Daumá he took Ukeider unawares on the chase, killed a brother of his called Hassân, and conquered the place. This happened in the 9th year of the Higrá. After this Muhammad made peace with Ukeider, leaving him in the possession of his land and his Christian faith, upon the condition that he should pay the tribute, which the Muhammadans regard themselves as entitled to exact of every one who will not profess their religion. But another brother of Ukeider, called Harîth, embraced the new religion. When afterwards Ukeider broke his agreement, he was expelled from his land by Khalîfá 'Umar, with all the people of Arabia who refused to embrace Islâm. Ukeider resorted to Alhîrá, where he founded, in the neighbourhood of 'Ein Altamar, a village which he named Daumá after his own native town, whence he had been expelled. In the time of Aboo 'Ubeidá this 'Irak Daumá had fallen in ruins, but traces of it are still to be seen. According to the historiographers of the Muhammadan conquests, Iakoot says, that Dauma was taken in the 12th year of Higrá by Khâlid on his return from an expedition which he had made into 'Irâk. Ukeider was killed by the Muhammadan general because he, after

the death of the Prophet, had refused to pay the tribute and had renounced Islâm, which he had before embraced. It was by reason of that apostacy and breach of compact that the name of Ukeider was given him. Ahmad bnu Gâbir, to whose account of Ukeider, Iakoot gives the greatest credit, relates that the Prophet sent Khâlid, son of Alwalîd, in the 9th year of the Higrá, to conquer Daumát Algandal. The Governor of the place, Ukeider, was made a captive by the Muhammadan general, and a brother of his killed. The prisoner, when brought before Muhammad, appeared in a velvet mantle, embroidered with gold, embraced the Islâm religion, and was left in the possession of Daumá, upon condition of paying the Zakà tax and subscribing to other stipulations, made known to him and the people of Daumá in the following treaty of the Prophet: "In the name of All-merciful God! this is the treaty of Muhammad, the Prophet of God, with Ukeider, when he embraced Islâm and abjured idolatry and the false religion, and with the people of Daumá: to us shall belong all the waste, uncultivated, and uninhabited lands outside the town, with the water that occurs there; moreover the trappings, weapons, beasts of burden, and the castle: to you shall belong whatever is within the town of palms and springs: neither shall the pasture-grounds be prohibited you, upon the condition that you will observe the prayers at their due times, and pay, conformably to the divine law, the Zakà, which tax however shall be computed at a round sum according to the total number of your herds, and not for every animal separately: remember, this is a covenant and pact in the name of God, which we promise to keep and fulfil in truth: in witness whereof we call God and whoever be present of Muslims." The terms of peace, continues Ahmad bnu Gâbir, being settled and agreed upon, Ukeider was allowed to return to his town. But when Muhammad died, Ukeider refused to pay the tribute, and emigrated from Daumá to the environs of Alhîrá, where he founded a town in the neighbourhood of 'Ein Altamar, which he called Daumá. But as the brother of Ukeider, Alharîth, kept to the Islâm religion, the possession of his property was secured to him, and a daughter of his was married to Iezîd, son of Mu'âwiyé. Some relate, continues Iakoot, that when Khâlid on his way from Syria to Irâk passed Daumát Algandal, he besieged and conquered the town for the second time, and that Ukeider was killed upon that occasion. Others contend that Ukeider originally resided in Daumát Alhîrá, and having once gone out hunting with his kindred tribe of Kalb, came upon a ruined town, whose decayed walls were built of huge stones. They restored the town and planted olives and other fruit-trees there, and called the place Daumát Algandal to distinguish it from Daumát Alhîrá. Both of the towns were under the government of Ukeider, who shifted

his residence from the one to the other. This is the substance of the account which Iakoot gives us of Daumá, or the present Algawf. There are, besides, many quotations from poets, referring to this place; but as the manuscript of this most valuable work, belonging to the Asiatic Museum in St. Petersburg, from which I have made this extract, is very faulty and incorrect, I have not been able to give a literal translation of the text.

The Daumát Alhîrá, which Iakoot mentions as a sister town to the other Daumá, is obviously the same place which Burckhardt, quoted by Ritter, calls Dumathir or Dumathor. As situated in the open flat lowland of 'Irâk, at a distance of at least six days from Algawf, the celebrated author of the 'Geographia Sacra' had every reason to translate the word "terra plana," or the Irâk Daumá, to distinguish it from Dawmát Algandal, or the Syrian Daumá, which, as we have seen, is on all sides surrounded by mountains; but there was no occasion for the learned German geographer to conclude from this that Niebuhr might have known Algawf only from its southern side, supposed to be the only mountainous part of the land, whereas the later accounts of Seetzen and Burckhardt might refer to the northern side, presumed to be a quite flat and open low-land.

In the history of Rashîd Aldîn (MS. of the Royal Asiatic Society of London) the following account is given of an expedition which Muhammad made against Daumát Algandal:—"When, in the month of Rebî' Alawwal, being the 50th month of the Higrá, the report was brought to the Prophet that Arabs were gathered in Daumát Algandal, a Syrian village 5 days (!) distant from Damascus and 15 days (!) from Almedînâ, he conferred the administration of Almedînâ upon Sebá', and set out himself with 1000 men and a guide, called Madhkoor, of the 'Udhrá tribe. He marched only during the night and reposed during the day, and when he arrived at the place he found the town empty and the inhabitants fled, having left their cattle and other property an easy prize to the Muhammadans. Men were sent out in search of the people, and at last one of them was found and brought before the Prophet, to whom he gave the intelligence that, when the inhabitants were informed of the Muhammadan troops approaching their town, they all had fled. The people were then prevailed upon to come forth from their hiding-places, and, upon the representations of Muhammad, to embrace the new religion; after which the Prophet returned to Almedînâ on the 10th of the second Rebî'." The latest and the most critical historiographer of the old Arabs, M. Caussin de Perceval, in his excellent work 'L'Histoire des Arabes avant l'Islamisme,' vol. iii. p. 414, relates, from Tabary and other Arabic authors, the final Muhammadan conquest of Daumát Algandal in the following manner:—When in the 12th

year of the Higrá, Aboo Bekr sent two of his generals, Khâlid and Iyâd, to penetrate into 'Irâk by two different ways in order to conquer that province, he enjoined the latter, who was to take the direct road across the desert, to subdue the inhabitants of Daumát Algandal, who had revolted. The general, however, was so far from being able to reduce the insurgents to obedience, that he found himself embarrassed in the siege he had laid to the town, and wrote to Khâlid, who, after having conquered and occupied Alhîrá and Anbâr, was by that time in 'Ein Altamar, urging him to come to his assistance. Leaving a garrison in the subdued towns, Khâlid hastened to his brother-general's help to Daumat Algandal, conquered the town, subdued the rebellious inhabitants, and put to death not only Ukeider, who, refusing to fight against him, had advised the people to make peace with the Muhammadans by surrendering their town, but also another governor of the place, called Goody, who, at the head of an army consisting of the warriors of the place and a great number of neighbouring Bedawies, had made a sally against Khâlid, in which he was captured. Other historians however, relate, continues M. C. de Perceval, that Ukeider was only made prisoner and brought to Almedînâ before the Prophet. Afterwards he was set at liberty by 'Umar and exiled to 'Irâk, where he built Daumát Alhirá. We may, perhaps, with more probability suppose that Ukeider contrived to escape from the Muhammadan conquerors, or that he, if made a prisoner, was not long detained in captivity, but was, soon after the conquest, allowed to return to his native place or exiled to 'Irâk. From the new settlement which he founded here, he might occasionally have returned to Daumát Algandal, where he still continued to exercise some influence and power, until 'Umar, in the very beginning of his Khalifat, determined upon executing the command of the Prophet "to permit no professor of any other religion than the Muhammadan to dwell in Arabia." Ukeider was then forced to fly his birthplace altogether and settle in the new Daumá. To this expulsion of the Christians and final occupation of Daumát by the Muhammadans, the still current tradition seems to refer, which invariably attributes to 'Umár the conquest of this place. 'Aly, who by the same tradition, is said to have assisted at the conquest and with a blow of his sword to have struck open the iron gate of Almârid, is, I believe, mentioned by no author as a partaker of any expedition against Daumá. This final occupation of the place, which took place during the Khalifat of 'Umár or of Aboo Bekr, tradition confounds with the expedition which Muhammad, while in Tebook, sent against Daumá under the command of his general Khâlid. The present inhabitants both of Tebook and Algawf tell us of this expedition as the first and only conquest the Muhammadans made of their towns,

and it seems so much the more probable that such an occupation did take place, as the Prophet, during his sojourn in Tebook, also received messages from the other neighbouring towns of Eilá and Udhruh, offering to pay tribute to him on condition of being allowed to retain their old religion. The expedition of the 5th year of the Higrá, mentioned in the history of Rashîd Aldîn and also in the Tarîkh Alkhamîsy, according to C. de Perceval, iii. 129, was chiefly undertaken in order to chastise some Bedawy tribes of Kalb and Sakoon, who had attacked peaceful karawâns on their way from Syria to Almedînâ, and seems, except in the plunder gained from the inhabitants, to have exercised no influence on the political state of the place.

Alkalkashendy, in his above-mentioned genealogical work, reckons Daumát Algandal among the market-towns of Arabia, stating that Arabs from far and near arrived here on the first day of the first Rebî', and continued carrying on a considerable trade by way of barter until the last of the same month. During this time they were hospitably entertained by Ukeider, the governor of the town; but sometimes it happened that the tribe of Kalb make themselves masters of the fair, when the Arabs were entertained by some of their chiefs.

As to the religion which before Islâm prevailed in Algawf, there is but one opinion among the present inhabitants, who unanimously agree that the Christian faith was professed there. But the tradition of the Muhammadan prophet, which Iakoot has preserved in his geographical work, seems to imply that at some time or other the Jewish religion also had been professed there. If we consider the relations and the intercourse which Algawf must necessarily, in consequence of its situation, at all times have entertained with Syria more than with any other country, we may suppose that the religion and civilization which during every different age prevailed there, had more or less penetrated also here. We may, without much improbability, presume that each of the two religions in its turn was the predominant in Algawf, and that at the time of Muhammad's appearance, both of them were tolerated together, as is still the case in most of the Eastern towns. But Arab authors remind us still farther of an idol which, under the name of Wadd or Wudd (Love), was worshipped by the inhabitants of Daumát Algandal. The desert was, in my opinion, never the proper home of idolatry; neither does the character of true Bedawies, nor the nature of their land, agree with that worship. Wherever, therefore, idolatry formerly prevailed in the desert, I suppose it to have been introduced by those tribes from Iemen, that from time to time emigrated from their own land, and for a longer or shorter period overran and occupied Negd, and the greater part of Northern Arabia. In

Iemen, idolatry was probably introduced from India, between which land and the southern parts of Arabia there apparently was in olden times, as to a certain degree there is still, a very lively intercourse. The route emigrants from Iemen followed, led generally first to Mekká, which town still seems to me to have more of an Indian than a real Arabic character; from hence they spread over Alhigâz and Altahâmá, and along the foot of the mountain ranges, which stretch out from the main chain in a N.E. direction, forming the northern boundary of Negd, whence they gradually came to the two mountains of Tay. From this they had to choose between two different roads—one leading N.E. to Mesopotamia and Persia, the other N.W., either over Algawf or Tebook, to Syria, Egypt, and Northern Africa. Wherever they went they probably carried their idol with them, and when settled in a land, they surely erected it there to be worshipped and adored by them; but it seems improbable that they should have tried to convert to their religion the old inhabitants of the lands in which they took up their abodes. On the contrary, a general toleration in religious matters seems to have prevailed throughout Arabia in the age of ignorance, as the period before Islâm is called by Muhammadan writers; and it may even be presumed that those Iemen emigrants, when they came into a land, whose inhabitants surpassed them in culture and civilization, would gradually more or less conform to their manners, language, and religion. This was the case with the two Iemen tribes, Kalb and Sakoon, who held the sway in Algawf at the time of the Muhammadan conquest of that town. Having worshipped here for some time past their idol Wudd, they embraced the Christian religion, to which they held true until they were converted to Islâm, by the Muhammadan conquerors, by force. Thus we may, in conformity with the still current tradition and the greatest Arab historian, Ibnu Khaldoon, as cited by C. de Perceval (i. 214), suppose, that at the time of that occupation, the predominant religion in Algawf was the Christian faith, in opposition to the statement of Ritter (xiii. 379), that at that time, the Benoo Kalb still worshipped their idol Wudd in the shape of a man.

On the 30th of August I left Algawf in company with a Bedawy family of a small tribe, called Hawâzim, who live intermingled with Sherârât in the neighbourhood of Skâká. These Hawâzim I believe to be remnants of the formerly powerful tribe of Adwan, which, under the name of Hawâzim, spread over a great part of Negd and was of considerable influence in the ancient history of the Arabs. They now lived here despised and poor, exposed to plunder and pillage from their powerful neighbours of the Shammar tribe, who, continually harassing them in larger or smaller pre-

datory and pilfering parties, had already robbed and carried away to their own homes the greater part of their weaker enemy's cattle and camels. It was with a view of securing himself and the small remnants of his property, that my companion had decided on deserting his home and his own tribe, and was going to emigrate with his family and the few camels left him to his enemy's country, where he was sure of finding security by paying the Shammar-chief, allegiance and the Zakà tax. As he belonged to a tribe at enmity with the people he was going to, he wanted a protector on his way, in case he should happen to fall in with any party of his enemies. This protector was a woman, native of the Shammar village Gubbé, but married and settled in Algawf. She followed us with her husband, and proved to be a sufficient safeguard, inasmuch as her presence really saved us from being plundered by a predatory party of her townspeople whom we met with on our way. Having crossed the valley of Algawf in a S.E. direction for about three-quarters of an hour, we ascended the mountains of Gâl-Algawf, which on this side are somewhat lower, and covered on their slopes with a loose and soft sand. On the other side we had no descent to make from the crest of the chain; as the mountains vanish imperceptibly in the sands of the Nufood land, which commences here and continues uninterruptedly to near the Aga chain in Gebel Shammar. After a march of five hours in this sandy tract, we made a halt for the night.

On the 31st, a continued march of 13¾ hours in a S.S.E. direction brought us to the wells of Alshakîk, situated, six in number, on a plain of a hard and saline soil, very much contrasting with the soft sand, of which the surrounding tracts consist. They have all a depth of from 20 to 25 fathoms, forming large basins below, and opening in round narrow mouths of about one yard diameter. They are built of large square stones with great care and good workmanship, and upon the stones that formed the openings, I could distinguish various signs of crosses and figures, meant apparently for letters, though now very much effaced and indistinct. The water is sweet and excellent, and never fails totally throughout the year. As it is the only well between Algawf and Negd, in a land that abounds in pasture, even to the end of summer, it is of the greatest importance, not only for the communication between Syria and Negd, but also for the nomads, who in any season may be sure of finding pasture here for their herds. During the two last months of this summer there had encamped around these wells more than one hundred families of the Ruwalá, Shammar, and Sherârât, who found sufficient pasture for their numerous herds of camels during that long period; but as the water finally began to decrease in the wells,

so as not to suffice for the watering of the cattle, they had been compelled to leave the place two days before our arrival. From Algawf to Alshakîk is usually accounted only 12 to 14 hours: but we had been nearly 20 on the road on account of our weak and meagre camels. These are probably the wells mentioned by Iakoot under the same name "as a watering-place belonging to Benoo Ahîd (?) bnu 'Amroo bnu Temîm. Alshakîk (he adds) is by some regarded as a plural form of Alshakîká, which signifies every piece of ground of a mixed soil of clay, sand and stone, lying between two ranges of a deeper and looser sand." This perfectly agrees with the nature of the ground in which these wells are dug; and, in fact, at every place where I have met with wells and water in this Nufood land, the soil has been of this same character.

Having passed the greater part of the following day, the 1st of September, at the wells, in filling our water-skins and giving our camels drink, we made but a short march of six hours. Our direction was the same as the preceding day, S.S.E. To our right we saw during the whole of our day's march a low range of mountains called Altuwâl, extending from N.W. to S.E.; but on the following day, in the forenoon, they had already disappeared from our sight.

On the 2nd we made a march of 14¼ hours, always in the same S.S.E. direction, following a kind of road called Alkhall, the tracks of which can generally be pretty distinctly traced along the whole road between Algawf and Gubbé, but in some places they were quite swept away by the moving sand. This greatly puzzled our guide, who was not sure of his way; but early in the morning we had descried in the horizon, right before us to the S.S.E., two solitary mountain peaks rising as a beacon midway between Algawf and Gubbé, above the level of this sand-ocean.

On the 3rd, we reached, after a march of three hours, the two mountains, which stand so close to each other as to form one sole base, from which each of them rises into a conical summit. The northern mount is called Al'aleim, the other Alturky. Perhaps these two peaks might be identified with the two mounts, mentioned by Iakoot under the names of 'Alam Alsa'd and Dagoog. He places them at one day's distance from Daumát Algandal, adding that they are of considerable height, and so close, as to join one another. Dagoog, he subjoins, is an uninterrupted ridge of sand, extending for two days' march as far as one day's distance from Teimâ, on the other side of which, commences the desert (probably the Syrian). One day E. of Teimâ commences, in fact, the Nufood land, and the distance from these two peaks to Teimâ may, with all probability, be estimated at three days; but the distance of only one day from Algawf, which

Iakoot gives to his two mountains, does not agree with that of these peaks. They are of importance as land-marks in this desert, where, on account of its unvaried and uniform character, a traveller may easily lose his way. From the two peaks we made another march of 12½ hours this day.

On the 4th our march was 18¾ hours. Early in the morning we perceived before us in the horizon another mountain, bearing S.S.E. It is at the foot of this mountain, called Muslimân, that the village of Gubbé, the object of our journey, is situated; and we accordingly directed our course direct towards it, and reached the place on the following day after a march of 13 hours.

Our march from Algawf to Gubbé had thus been 87 hours; but I ought to observe that our animals were very weak and meagre, particularly towards the end of the journey, when during four days they had tasted no water. The two last days the camels very often knelt down of themselves from fatigue, in defiance of the blows and kicks by which we tried to rouse them. One of the unloaded animals lay down in the shade of a small shrub, and we were obliged to leave it there to die. They were, besides, allowed to pasture on the dry herbs along the way; and as the animals that had no rider wandered away from the road, our guide, his wife with a child at her breast, the two little boys, and I, were every instant obliged to dismount in order to drive them back to the road. This naturally retarded our march very much. If we, moreover, take into account the nature of the land, undulating in continual hills and valleys, all covered with deep and loose sand, in which the animals' feet often sank very low, and consider the many détours and circuits the road makes in order to avoid the most difficult grounds, we may estimate the delays caused by these circumstances, to have increased the number of hours' march to at least a third part above what an equal length of road would require under ordinary circumstances. Generally this way is made in 4½ days; but even this is more than the same distance would take to be travelled through in a land of an easier and more level ground. The direction was in general during the whole of our route S.S.E., according to the rule which the people of the land give a traveller about to traverse this desert, "so to direct his course that he always has the polar star on his left shoulder-blade."

Gubbé is situated on an extensive open plain of an elliptical form, and that hard stony soil, which generally in this land distinguishes a place where water is to be found. This plain is surrounded by a ridge of very low sandstone hills, above which rises to the W.N.W. the higher mountain of Muslimân, and to the E.S.E., right opposite, another somewhat lower peak, called Alghawtá. The distance, between these two peaks, is about 10 English

miles; but the length of the plain in the other direction from N. to S. is a little more. The hills, which border the plain on the southern side, are very low, and, covered with sand as they partly are, they can hardly be distinguished from the sand-hills of the contiguous Nufood; but those on the northern side are higher. Near to Muslimân northward, there rises another smaller peak, called 'Eneize. The village is built on the northern part of the plain, at a distance of about one mile from Muslimân, and consists of five divisions or sooks, viz., Altureif, Alselâl, Alhamâlé, Alkilab, and Almug'a'alât, of which the last-mentioned is separated from the others, and extends to the S. on the plain. The four others are placed in a row from E to W. The houses are constructed of sun-burnt clay-bricks, almost the only building materials used in the desert, but they are generally larger and more comfortable than those of Algawf, also of a somewhat different architecture, the larger of them presenting a front somewhat resembling in form the propylæa of the old Egyptian temples. Almost every house has its orchard joined to it, or it is sometimes erected in the centre of it, not as in Algawf, where the plantations are all separated from the town. Each orchard has its own well, from which the water is raised for irrigation by aid of camels; they are cultivated with great care and laid out with taste, and both the well and the roofed path which the animal takes, when drawing up the skin-bucket with its contents, are overhung with vines. Besides palms (which, however, do not produce here such excellent dates as those of Algawf and Teimâ), and other fruit-trees, common to these countries, we now meet with a new tree, a species of pine, called Athal,* which more rarely occurs in the northern parts of Arabia, and then only wild, but which is frequently cultivated by the inhabitants of Negd on account of its wood, which they exclusively use in building. There is no spring of running water in the whole place, but a great abundance of wells, though all of them are very deep and contain a hard and somewhat brackish water. The number of families amounts to about 170, all belonging to the tribe of Armâl, regarded as one of the noblest and greatest of the Shammar race. Their character differs somewhat from that of the people in the parts whence I came, and their features present another type than the Syrian. They are of a sicklier complexion and of a weaker constitution, and diseases of various kinds are common in their village. This may in part be ascribed to the inferior quality of the dates, which constitute the principal food of the people here, as in all Negd, and the brackishness of the water. Their mode of living is quite the same as that of the nomadic Bedawies, excepting that they dwell in fixed abodes

* The Oriental Tamarisc.—R.

and houses. Most of them possess great herds of camels, which they either give in charge to their Bedawy brothers, or send out with their own herdsmen on the pasture grounds in the neighbourhood of their village. The situation of their village and their own numbers protect them not only from attacks of enemies, but also from almost all dissensions with the nomad sheïkhs; and they themselves make continual predatory expeditions against Sherârât and other tribes in the northern parts of the Nufood land. Upon pretext of a holy war against infidels, who neither pay the Zakà tax, nor observe other precepts commanded in Alkur'ân, they regard it as their duty, as true Unitarians, to harass and persecute with incessant plunder and pilfering, all tribes who do not profess the Wahhâby creed, until they have forced them to enter in alliance with Shammar, by consenting to pay their chief the Zakà and to pledge him their allegiance. During this summer parties of about 100 men had five different times made predatory excursions from this village against Sherârât, and collected a booty of upwards of 2000 camels. The village is seldom visited by pedlars and those wayfaring traders, who so often are met with in the villages along the pilgrim-route and in larger towns of the desert. During my sojourn here there was, however, one trader from Almedîná, who complained of doing but slight business. The inhabitants get their clothes and other necessaries generally from Hâil, and the small supplies of rice which they want, are brought to them from Irâk, by their Bedawy allies. Wheat, millet, and oats they cultivate themselves, and the produce is generally more than sufficient for their wants. Bedawies of different tribes arrive here in great numbers, especially at the time of the date harvest, and during my stay in the village there were upwards of 150 nomad tents pitched on the plain and among the houses. The greater part of them were Ruwalá and Shammar, but families of other 'Enezé clans, as Bishr and Tukarâ, were also of the number, and some of Sherârât and Hawâzim, who already had made alliance with Shammar. As the environs are of the best pasture grounds in the Nufood land, and Gubbé is the only place that contains water between this and Alshakîk, there is, besides, at all seasons of the year, a great conflux of nomads in this village.

The few and incoherent traditions handed down to the presen population regarding their ancestors and the former possessors of this land, are the same as those preserved among the Shammar people in general, but, as I shall have occasion to relate them afterwards, I omit mentioning anything but what regards Gubbé in particular. The mountain of Muslimân, which, rising about 500 feet above the level of the plain, forms the most prominent feature of the place, is said in former times to have borne the

name of Alketeifá. We have very often had occasion to see in the course of this journey how modern names have been substituted in place of the old ones, handed down to us by tradition or by geographers. This change of names was in particular very natural in Arabia, where every tract and place continually changed masters, and it seems so much more likely to have taken place in the mountain of Muslimân, as the very word, in the same manner as that of the above-mentioned peak of Alturky, apparently betrays a modern origin It is in this mountain the present inhabitants tell us, that the remoter generations of the former possessors of the place had their habitations, and they still see traces of their houses and palaces here. They showed me the places where the markets of the mountain-town were laid out, and where the streets led between the cliffs; high perpendicular mountain sides, they pretended to be remains of palace walls, erected by genii for the accommodation of their ancestors. and assured me that sometimes pieces and fragments of various utensils are found in the mountain clefts. I could, however, see nothing in the pretended remains of their ancestors' abodes, but ruins and fissures in the mountain itself, which, as it consists of a very frail sand-stone, in the decomposition it has undergone in course of time, has burst in tremendously large gaps and clefts, which the lively imagination of the Arabs has formed into palaces and abodes for their possibly troglodyte ancestors. Or it seems rather probable that the change and revolution this mountain obviously has undergone, is the effect of some heavy and sudden earthquake. The plain, extending at its foot, is strewn over with immensely large stones and cliffs, seeming as if suddenly detached and rolled down from the superincumbent peak, and the interior presents the aspect of a glen, so to say, in form of a vast hall, floored and walled by mountains. The inhabitants say that, in former days, the whole of the plain, of which now but a very small part is cultivated, was covered with cornfields and orchards, which for a great part were watered by an abundant spring, the place of which fountain-head is still shown in a mountain-rent in the slope of Muslimân. The water was led in small channels through the subjacent plain, and furrows, which still are seen in some parts of it, are said to denote their old course. At that time the wells also are said to have been more numerous and a great deal more abundant; so that one, for instance, is pretended to have been large enough to contain 60 water-wheels, over which the heavy hide-buckets were drawn up, all at one time. The source is now drained, and all endeavours of the inhabitants to find its origin have proved fruitless, and so have the spells and exorcisms, which every stranger arriving here is forced by the people to try, in order to conjure the water to flow again.

The only Arab author, by whom I have found any mention made of this place, is the author of Alkâmoos, who says that Gubbé is a settlement belonging to Benoo Tay. Iakoot mentions Keteifá, pronouncing it, however, Kuteifá, as a mountain at the upper end of a valley, called Mabhal, which belonged to Abd Allah bnu Ghatafân. Another author, Aboo Zeyad, whom Iakoot quotes, says that Kuteifá is a water belonging to 'Amroo bnu Kilâb. In proof of the former statement, a verse is cited from Imru Alkeis, and of the latter, some lines from Aboo Gâbir Alkilâby. Both statements may be regarded as correct, if we suppose Imru Alkeis to mean the mountain itself, and the other poet the now drained spring, which in his time, perhaps, still contained water. If the plain, upon which the village is situated, in former times was called Mabhal, a name which I did not hear mentioned, the present Muslimân is, in fact, situated at its upper end, inasmuch as the plain does really slope from that mountain S.S.E. towards the opposite peak of Alghawtá.

There is a great quantity of inscriptions and different figures, partly engraved, as it seems, with some sharp iron instrument, partly made with a kind of reddish slate stone, in the sides of Muslimân and on the huge stones which lie spread around its foot. Many of them are made by Bedawy children, who thus beguile the hours, while tending the herds on the pasture; but others evidently date from remoter times. The figures that most commonly occur, are those of camels, horses, sometimes mounted by a warrior armed with a javelin, dogs, sheep, occasionally also wild animals of the desert. My attention was particularly attracted by an evidently ancient figure, representing a small cart on four very low wheels, drawn by two camels. It is well known that in our times, wheels are very rare in the East, and especially in Arabia, where I have never seen them anywhere but in Teimâ, whose inhabitants occasionally use a small cart on four low wheels for dragging stones, which is nearly of the same appearance and construction as this, designed on a large rock at the foot of Muslimân. All these inscriptions and figures are drawn with clumsy and inexperienced hands, and perfectly resemble those I have seen in some other places of northern Arabia in the environs of Tebook. The longest and most clear inscriptions I found on the N.E. side of Muslimân on a wall, of which a part seemed as if planed for the purpose. The characters were very much effaced in the brittle sand-stone, and difficult to make out. The whole of the smooth plane in the mountain side, forming an ellipsis, whose longest diameter I estimated at about one yard, seemed originally to have been written full with such signs. Others are seen on some of the huge stones which lie spread upon the plain below the mountain.

Below these inscriptions is drawn the figure of a camel. I was told that the sides of the chain were covered on its whole extent with such figures and inscriptions, and I consequently descended along its foot, examining the mountain-walls and stones; but I soon found that the farther I removed from the main peak of Muslimân, the more insignificant became the inscriptions. On the N.W. side of Muslimân I also found an inscription in Kufic letters, containing, however, only the Basmalé; but none in modern Arabic characters.

On the 18th of September I left Gubbé, in company with a guide of the Shammar Bedawies. Our way led across the plain, right towards the peak of Alghawtá, which we reached after a march of 3 hours. Immediately on the other side of the peak, recommences the Nufood land, which had been interrupted by the plain of Gubbé, with its undulating ground of hills and valleys of loose sand. Solitary peaks are seen here more than in other parts of the Nufood, rising above the undulations, and the whole is limited by the mighty mountain chain of Agâ, which we descried from this bearing E.S.E. We made a march of only 6 hours more this day.

On the 19th we arrived after a march of 9 hours E.S.E., at a small village called Kenâ, situated on a plain of very white chalky ground, surrounded by a low range of sandstone hills. The village consists of fifty families of the tribe of Armâl, and contains six abundant and deep wells, in all of which the water is sweet and good. Around each of these wells, separated at a short distance one from another on the plain, there has arisen a small hamlet of about six to ten houses, with their adjoining orchards. This village is by its own inhabitants, as by the people of Negd in general, asserted to be the birthplace of Aboo Zeid, the Bedawy hero of Benoo Hilâl, so renowned in Arabic tales; and here Sultân Hasan, the chief sheïkh of that tribe, is said to have resided. Kenâ is by Aboo Zeyâd, as quoted by Iakoot, stated to be a water-place belonging to Benoo Kusheir, and Iakoot himself mentions this place upon the authority of a man of the Tay tribe, native of Gebel Shammar, as a mountain E. of the valley called Alhâgiz, adding, that N. on this mountain are situated two other small peaks, named Alsâiratân.

One hour S. of Kenâ the Nufood land ceases suddenly, changing, on a very sharp line of demarcation, into a hard, perfectly flat ground, covered with a slender stratum of coarse granitic gravel. This kind of land, of which the greater part of Negd consists, is by the Arabs called Kâ'á on account of its flatness, and Geledé on account of its hard soil, in opposition to a rugged undulating ground, which they designate by the name of Wa'ar (plur. Wu'oor), whether its undulations be formed of peaks or sand-

hills. The word Nufood, which in our days is almost the only name given to the vast and extended sand-tract, through the centre of which our way had led from Algawf, is in the same manner as Bathâ, properly used to signify a fine and loose sand, and then applied to every country, and every plain or valley, which consists of such a sandy soil. But in the old language, the word Nufood has no other signification, than that of dearth and destitution of provisions and water. It seems, therefore, probable that this word originally was applied as a name to every extensive and perilous desert tract, where travellers and their camels run the risk of perishing by the length of the way, and by falling short of provisions and water, in the same manner as the words Mahlaká and Beidâ, and others of like signification, are employed in this sense; and certainly there are few, if any, parts of the desert which better deserve this denomination, than that which in our days is generally called Nufood. The old name Dahnâ, by which it is exclusively known by the Arab authors, is seldom used by the present inhabitants, and then even more in the sense of a fine and abundant sand, than as a common name of the whole land, and is always pronounced by them Dăhănná. The name Dhâhî I scarcely can remember having heard but once or twice, and Ta'oos is only used to signify the sand-hills of which the tract consists. Be this as it may, the present Nufood is one of the largest and most extensive tracts of Arabia, occupying the whole centre of the northern part of the peninsula. If we regard Wâdî Sirhân as constituting a part of this land, its western boundary will be a line drawn from the solitary mountain Hulwân, about 8 hours E. of Teimâ, up to the well of Weisit, and from thence, continued till about 2 days S. or S.E. of Damascus. The southern boundary extends from Hulwân, nearly in a semicircle along the route I made from Teimâ to Gebel Shammar, approaching the Tay chain of Agâ, in some places at only some few hours' distance. The eastern boundary is very irregular, inasmuch as the sand-ridges on this side extend very unequally, some as far down as nearly to reach the Persian Gulf, others vanishing very soon in the stony plain, which lies between the Nufood and the sea-coast. The largest and longest of these ridges is one which, under the name of Dahnâ in a stricter sense, has been stated to me by Shammar Bedawies to commence somewhere near Algawf, and in a S.E. direction, forming the limit of the province of Alahsâ, to extend as far down as Râs Alkheimá. Perhaps it may with more probability be supposed to join the vast sands of Iebrin. As for the northern and N.E. limits of the Nufood land, I have not been able to ascertain their extent, but they may perhaps be supposed to be formed by a northerly continuation of the Dahnâ ridge, bending its course north-westwards

around the land of Algawf, and joining thus Wâdî Sirhân. The western parts of this tract are higher and more irregular, consisting of ridges and valleys of sand, continually alternating with each other without any precise direction; and the parts between Algawf and Gubbé, and between Hulwân and Weisit, seem to be the proper centre of the Nufood. The western boundary line is sharply defined by the Nufood range, which, wherever I have seen it here, rises about 100 or 200 feet above the subjacent Syrian desert, and extends with an uninterrupted ridge of sand-hills, resembling the wall of a mountain chain, along the edge of that sterile and stony plain. On the southern limits, in the descents of the land towards Agâ, the intervening valleys enlarge in circumference, and become open concave plains bounded by sand-hills, increasing in circuit, but diminishing in height, and here and there interrupted by ridges of sandstone. Towards E. and S E. the country falls into low sand-ridges, branching out from the higher western parts, and enclosing between every two of them, flat but long valleys, which for a longer or shorter extent, run down towards the Persian Gulf. What I have seen of Wâdî Sirhân has quite the same character, though the outlines of its features and the undulations of its surface are in general less sharp than in other parts of this tract. Between Wâdî Sirhân and the proper Nufood, which are the two principal parts constituting this extensive sand desert, the chain of Gâl-Algawf, with the mountainous tracts adjacent to it, rises higher than both, but on each side there probably extend ridges of sand over from one to another. The Nufood land is, on its whole extent, one of the richest pasture-grounds in Arabia; but for want of wells and sources, it can only be visited by the nomads during the spring, when the rain gathers in ponds and pools. The middle part of it is especially poor in water, and therefore seldom, if ever, an encampment of Bedawies is seen between Alshakîk and Gubbé; but the northern parts of Wâdî Sirhân, and the southern slopes of the Nufood bordering on Gebel Shammar, are during the whole of the year very much frequented; the former by Sherârât and Ruwalá, the latter by Bishr and Shammar. In the eastern descents nomadize Shammar, Dhafîr, and Muntafik during the winter and spring; but in summer they all draw nearer to the cultivated countries—Shammar towards their own land, and the others towards the Euphrates and Tigris, and at that time there are few nomads met with, except single families of Sulabâ, the most despised tribe of Heteim. Occasionally some larger tribe encamps around the abundant wells of Leiná, from whence they send their herds to pasture in the surrounding land; but it is a perilous and precarious station, on account of the continual parties of Bedawy robbers, who pass this on their predatory expeditions

against hostile tribes, and who seldom fail to seek for water here. There is in general a greater abundance of wells and cisterns in these parts of the land than in the other parts; but the quantity and duration of the water they contain, quite depends upon the quantity of rain during the season. On the Mesopotamian pilgrim-route, leading over these eastern slopes of the Dahnâ desert, and which is still known by its old name of Zubeidá's Road, Bedawies have informed me that fresh and good water is found every day, and that the wells here, though in general very deep, are considerably lower than those occurring in the interior parts of this tract.

There is, in Iakoot's geographical work, a long article on this part, of which I will try to give a short extract, though the only manuscript I have had the opportunity of consulting is very incorrect, and I candidly confess that the sense in many places has remained obscure to me. Having spoken of the derivation and the different orthography of the word, the author suggests that "the name of Dahnâ has probably been given to this tract on account of the great variety of herbs and brush growing there. Upon the authority of Aboo Mansoor, this part is said to belong to Benoo Temîm, and to consist of seven ridges of sand, with a valley between every two of them. The length of Dahnâ is from the plain of Iansoo'á * to the sand desert of Iabrîn; and it is, notwithstanding the scarcity of water, one of the best and richest pasture-grounds in the world, sufficient in good years for all Arab nomads. Dahnâ is a beautiful and delicious country, with a soft soil, and a very salubrious climate, so much so that its inhabitants never suffer from fever" (which disease is very frequent on the coast of the Persian Gulf). So far the quotation from Aboo Mansoor. "Other geographers," Iakoot continues, "state that the last declivities of Aldahnâ commence in the vicinity of Iansoo'á, on the left hand of the pilgrim-route from Albasrá to Mekká. These declivities are connected with the ridges of Aldahnâ, which, five in number, extend in a diverging manner from one main body of sand towards Iansoo'á, and are by some compared with the five parts on which the camel reposes when kneeling down. Of these five ridges, that which is situated furthest up (to the N.), bordering on the lowland of Benoo Sa'd, is called Khashâkhish, on account of the noise caused by the great multitude of herds its inhabitants possess. The second ridge is named Hamâtân; the third Rimth;† the fourth Mu'abbar; and the fifth Khoorawaih. The third authority quoted by Iakoot is Heitham bnu Ady, who says that the valley is called Aldahnâ, which runs through

* Hammer, quoted by Ritter, Erdkunde, xiii. 363, reads Hasn Mersuua, which probably is incorrect.

† Rimth is the name of a very common desert herb. – R.

the possessions of Benoo Temîm, in the desert of Albasrá and the land belonging to Benoo Sa'd; but where it passes through the country of Benoo Asad, it assumes the name of Man'ig. From this it continues its course through the land of Ghatafân, and is called Alrummá, which is the valley generally known by the name of Batn Alrummá or Wâdî Alhâgiz, on the way from Feid to Almedînâ. Where it runs through the land of Tay it receives the name of Háil, and in the land of Kalb, that of Kurâkir, and in the land of Taghlib it is called Sawà. From this it again reflects to the land of Benoo Asad under the name of Man'ig, and from thence to the Ghatafân, who call it Alrummâ, which is the valley, Batn Alrummá, on the Mekká-route between Feid and Almedînâ, also known by the name of Wâdî Alhâgiz. From thence it passes farther on to the land of Tay, where it receives the name of Hâil, and so on to the land of Kalb and the village of Alnîl (in the vicinity of Alkoofá); and no matter how many people may pass through the land, this valley provides them all with water." After this quotation from Heitham, Iakoot as usual cites verses from the poets referring to this land, the translation of which, being of no geographical import, I will not here give. The last quotation from Heitham is also given by Ritter in the above-cited place from Hamaker, who appears, however, to have used a still more incorrect manuscript than that which I have consulted in the Asiatic Museum of St. Petersburg.

From this it appears that the Arab geographers do not agree upon the number of ridges which extend from the sand-tract of Aldahnâ; some enumerating them as seven, others only as five. I regard the last number as the correct one, inasmuch as Hâil and Batn Alrummá, stated by Heitham to constitute parts of this tract, must doubtlessly be placed in the country S. of Agâ, where the nature and character of the Nufood land has ceased altogether. Hâil is perhaps the valley-land which, under the present name of Albatîn, extends between the two Tay mountains, Agâ and Selmà, and Alhâgiz may be supposed to be the land S. of the latter of these mountains. If that part of the Dahnâ desert, which is said by Heitham to pass through the country where the Kalb Bedawies live by the name of Kurâkir, could be identified with the tract, where in our maps the water station of the same name is laid down in the vicinity N. of Algawf, it would be evident that the present Wâdî Sirhân was comprised by the old Arab geographers under the general name of this tract, and that therefore the special name, by which it is known to all Arabs of our days, was omitted or ignored by every author, even by the diligent Iakoot. Supposing Hamâtân of the Arab geographers to be the ridge which on the N.E. side, borders the valley now called Alhamâtiyé, we may pretty exactly determine the situation of

the four others, although I must avow that I never heard any of their old names mentioned by the people here. From the account given of the journey which I made from Gebel Shammar to Mesh-hed Aly in the summer of 1848,* it may be seen that Alhamâtiyé is a flat valley-land of somewhat harder soil than the surrounding Nufood, bordered on its N.E. side by that sand-ridge which in a stricter and more proper sense is at present called Aldâhâné, and on its S.W. side by another ridge, which my Bedawy companions of that journey told me was the end of the Nufood tract. That latter ridge, to which I, however, cannot remember any special name was given by my companions, I suppose to be the Rimth-ridge of the Arab geographers. The low sand-stone mountains of Seilá, mentioned in that account, probably belong to that ridge. The valley-land (Shakîká) between these two Nufood ridges, required a march of 13½ hours to cross, and contained water in a well called Hazil. S.W. of Seilá we also passed in a march of 13½ hours a similar valley, bordered on the other side by a Nufood ridge, which I suppose to be the old Mu'abbar. This tract contained the deep well called Alatwá. S.W. of that ridge extends the plain of Alkhattá, bordered on the other side by a Nufood ridge, which passes along by the N.E. declivities of the Agâ chain, and the low mountains of Keisy. This plain, on which is the well of Tayim, we crossed throughout its breadth in a march of 7 hours. The Nufood, which borders this plain or valley on its S.W. side, may probably be identified with the Khoorawaih ridge of Arab authors. As to the first mentioned of these ridges, Alkhashâkhish, which the Arabic geographers place farthest up in the vicinity of the low-land, where Benoo Sa'd lived, it must evidently be situated somewhere N. of the Dâhânâ or Hamâtân ridge, in the tract which in our days is called Alhagará. Though, properly speaking, the character of the Nufood land ceases on the N.E. side of that ridge, and the sandy soil of which it consists, here changes into a mountainous and stony ground, I remember, in my journey across this tract, to have fallen in with smaller ridges of Nufood, of which I, however, was then not able to ascertain any definite direction. We may perhaps, without improbability, assume a lower sand-ridge to run parallel with the Dahnâ ridge through the land of Alhagará, which, supposed to be the old Khashakhish, would form the N.E. boundary of a tract called Musheikik, whose very name, derived from the same root as the word Shakîká, denotes its character of a valley between two Nufood ridges. This supposed ridge would, if continued towards S.E., pass through the desert S.W. of Albasrá, at perhaps some days' distance from that

* *See* Journal of the Royal Geographical Society, vol. xx.—Ed.

town. Here the ancient Iansoo'á must have been situated, in the neighbourhood of which place the last hills of the Dahnâ Nufood are said to begin. Aboo Mansoor, quoted in Iakoot's work, mentions Iansoo'á with the additional epithet of Alkuff, as a water station on the pilgrim-route from Albasrá to Mekká, situated on the limit of the Dahnâ sand-tract, between Mâwayé and Alriiah, two other stations on the same way. Another author, Ubeid Allah Alsakoony, whom Iakoot also quotes, likewise places Iansoo'á on the Basrá pilgrim-route, 2 days from Alnibâg, with the intervening station of Alkhabrâ; adding that, when the traveller on his way to Mekká, leaves Iansoo'á in the night, he passes the following morning the last declivities of the Dahnâ on his left hand. Now, among the many Nibâg enumerated by Iakoot, there is one said to be a place in the town of Albasrá. Supposing therefore Alnibâg to be perhaps the gathering place for the pilgrims in the immediate vicinity of Albasrá, we may place the beginning of the last easterly declivities of the Dahnâ desert, at about 3 days' distance from Albasrá in a S.W. direction, which is the course the pilgrims take at present from that town to Mekká. The epithet of Alkuff and Hazn is probably added to the name of Iansoo'á, on account of the stony and mountainous ground the surrounding land consists of, and to which the name of Alhagará, given it by the present inhabitants, also refers. The Arab geographers make a distinction between the ridges (Agbul) and the hillocks (Akmâ'), or *humps*, in reference to the comparison they make between this tract and the camel, which form the last easterly slopes of the Dahnâ desert, and place the latter on the left hand of the Basrá pilgrim-route to Mekká. As my journeys in this tract passed through its more western parts, I had no opportunity of ascertaining the character of its last slopes towards the Persian Gulf; but from the statements of the Arab authors we may infer that the eastern part of this vast sand land, on its extent from Iansoo'á to Iabrîn, is intersected by an intervening narrow tract of somewhat harder soil, dividing the ridges (Agbul) from the hillocks (Akmâ'). It is in this tract, also a kind of Shakîká, that, on account of its situation, the greatest abundance of water in this land is to be found, and through which consequently the Basrá pilgrim-route, as well as part of Zubeidá's road, led to Mekká. The country on the eastern side of this tract, we may suppose to consist of lower hillocks of soft sand, showing the same character and aspect as Wâdî Sirhân, on the other side of the Nufood. But I never heard any mention made of this land of Nufood hillocks by my Bedawy companions on the journey to Mesopotamia, nor have I found in Arabic authors any clew for determining the farther extent of these hillocks towards the Persian Gulf. I may, how-

ever, here give, as an individual conjecture of my own, the opinion, that the Nufood land of Aldahnâ may perhaps bear some resemblance to the immense Iemenian sands, known by the name of Alahkâf. We may represent to us the whole of the interior of Arabia as consisting of two vast plateaus of sand, divided from each other by the intervening tract of Negd. This latter plateau, occupying the middle part of the peninsula, is on one side sheltered against the Dahnâ sands by the Tay chain of Agâ, and on the other from Alahkâf, by the chain of the broad mountains (Gebel Al'ârid). On the western side, both of the two sand-wastes are cut off by the mighty barrier-chain (Alhigâz), running along the coast of the Red Sea, or by tracts of mountainous high-lands (Sarawât) descending from that chain; but their eastern descents run down, towards the Persian Gulf and the ocean, into low flat coast-lands, Aldahnâ into the valley of Alahsâ, and Alahkâf into Mahrá; and they are both connected with one another on this side by the ranges of the Dahnâ hillocks, extending between Iansoo'á and Iabrîn. But whether the southern plateau be one uninterrupted waste of sand, occupying the whole tract between the broad mountain of Negd and the Iemenian chains, and thus comprising both Alahkâf and that part which, under the name of Alrab' Alkhâlî, is laid down in our maps as the uninhabited wilderness of Arabia; or whether it be divided in halves by some ridge, extending from the mountains of 'Umân to the opposite land of Negrân in Iemen, I will not venture to guess. There are tracts where no traveller, except some daring Bedawy, ever set his foot, and of which the authors give no information. From the description I have endeavoured to give of Aldahnâ and the sand ridges stretching out from its higher western parts towards the Persian Gulf, it may be inferred that the land slopes down to the S.E. But not only has this tract, but the whole peninsula of Arabia has, in my opinion, a southerly or south-easterly decline, in opposition to the statement of Ritter and some of the Arabic authors, who suppose that Arabia gradually rises towards the S. I regard Syria and its adjacent desert as the highest part of the peninsula, and Mesopotamia with the coast of the Persian Gulf and Mahrá, as the lowest, although the mountains of Iemen may rise higher above the land than the ridges in Negd. Wherever I have been in the interior to the E. of the barrier chain, I never fell in with a valley or a winter-rill (Seil) which did not run in a southerly or easterly direction. The climate seems also to prove the S.E. decline of Arabia. In the western parts of the peninsula the climate is in general good and salubrious, and Almedînâ, Gebel Shammar, and Algawf are, by all the inhabitants, admitted to be very healthy places, whereas Alriiâd and the more eastern parts of Negd are very

much complained of on account of their insalubrity. Along the coast of the Persian Gulf fevers are known to rage for the greater part of the year; Iabrîn is by the Arab authors noted for its foul and sickly atmosphere; and the marshy environs of Albasrá, and more or less all the lower parts of the Mesopotamian flood-lands, are still in our days shunned for their sultry and humid heats. This certainly is to some degree also the case with the coasts of the Red Sea, which, especially in some places, as, for instance, Giddá and even Mekká, are noted for a very insalubrious climate, in comparison with the higher situated parts of interior Arabia; but, upon an average, they are, particularly the northern parts, far more healthy and more free from diseases, than those of the Persian Gulf, and are also regarded as such by the Arabs. The inhabitants of Arabia denote this southerly or south-easterly slope of their land even in their language, in the expressions they use of *descending* from Syria towards Negd, and *mounting* from thence to the former land and Egypt. The people of Gebel Shammar *ascend* to Almedînâ, and *descend* to the lands of Ibnu Sa'ood, and even to Albasrá and other parts of 'Irâk, which country probably is one of the lowest in all Asia; and we may suggest that the province of Negd has received its name of high-land from comparison with Iemen and the southern parts of Alhigâz, whence, even from the very earliest times of Arabian history, emigrations have been going on to the northern and interior parts of the peninsula, whereas, on the contrary, but few and insignificant emigrations from the N. to the S. are to be traced. There is an old belief among the inhabitants of Negd that, of the different changes and phases, they believe our earth has undergone at various times by the influence of the different elements, one was effected by the wind. During a long space of time, they tell us, God produced a heavy northerly hurricane, which covered their land with its numberless sands, and caused its slope towards S. The Arabian authors differ very much in opinion with each other with regard to the slope of the peninsula. Some of them say that Iemen and Tihâmá are the upper, and 'Irâk and Syria the lower parts of Negd; others, and among them the author of Alsihâh, contend with more probability, as it seems to me, that Negd is the land which rises from Tihâmá towards 'Irâk.

But to return to our journey. We had made a march of $2\frac{3}{4}$ hours from the village of Kenâ, when we entered the mountain chain of Agâ, known also by the name of the ranges of Hâil. Our way lay over an open flat betwixt the mountains for about 5 hours, after which we reached a village called Lakeitá. It is situated on the same plain, and contains a population of about 120 families, all of Shammar origin. It is also mentioned by Iakoot (who,

however, pronounces it Lakîtá) as a water in the last descents of Agâ, known besides by the name of the Small Well. One hour from Lakeitá we passed another small village, called Wakîd, which contains about 30 families. In 2 hours from this we issued from the mountains on the open plain, which extends along the foot of Agâ on the S.E. side, and reached in one hour more the town of Hâil, the capital of Gebel Shammar, and the residence of the chief sheïkh of that tribe.

The principal and most prominent features of this tract are two mountain chains of granite, which still retain their ancient names of Agâ and Selmà. It is evidently to these mountains and to the name of the tribe, who now and probably for a long series of centuries, have been in possession of the land, that its present name of Gebel Shammar (the Shammar mountains) owes its origin. Formerly it was called, after the tribe who then lived here, Gebelâ Tay (the two mountains of Tay), which name is very often by the Arabic authors shortened to Algebelân, in the same manner as the present inhabitants and the people of the neighbouring countries say Algebel (the mountains), instead of the Shammar mountains. Agâ is by far the larger of the two, extending in a N.N.E. and S.S.W. direction, about 5 days in length, and 8 to 10 hours in width, to judge from the valleys, through which I have myself crossed the chain in two different places. The height of the chain, which is pretty equal on its whole extent, I estimated to be about 1000 feet above the level of the subjacent plain. The other chain, Selmà, runs parallel with the former, separated from it by an intervening plain, called Albatîn, whose breadth is about 12 hours' march. It has quite the same character and aspect as Agâ, also the same height, but not the same extent, the circumference of the whole chain probably not exceeding 3 days' journey. They both consist exclusively of coarse-grained granite of grey colour, and unlike other mountains in the interior desert, which generally are quite naked and barren, they are covered with a wild vegetation of small brush trees, not dissimilar to those occurring on the Syrian chains, and are intersected by flat valleys and plains, especially Agâ towards the N.N.E. This chain continues its course towards S.S.W., and passes over into the chains of Alhigâz, thus forming the natural boundary of Negd on the N.W. side. Its N.N.E. extent is abruptly cut off in the vicinity of the Keisy peak, at a distance of about one day from Hâil; and in the vast tract extending for 8 days eastward from this to the Persian Gulf, and 10 towards 'Irâk, there are no mountains of any consequence, but low inconsiderable peaks of sandstone, rising here and there above the sand. On the N.W. side it stands in no connection whatever with any other chains, and rises quite solitary on this as on the other side,

with tolerably steep walls, contrary to the statement of Ritter, who supposes it to flatten down towards Algawf, in gradually decreasing slopes. By a line of hard, gravelly ground, about two hours in width, it is separated from the Nufood land, whose ridges and descents of sand I have nowhere seen reach the foot of this chain; and on the other side extends the extensive plain of Albatin, covered with the same granitic gravel that, for the greater part, constitutes the soil of all Negd, nor have I anywhere noticed that fine and loose sand, gathered in its fissures and glens, with which the foot and ridges of other mountains in the interior of Arabia are generally overspread. Whether there be any rise of the chain towards either of its extremities, I will not presume positively to decide; but I rather believe there is none of any consequence. As for the valleys, which in a great many places cross the chain, they obviously have a S.E. slope, though the mountain walls on this side apparently do not exceed the N.W. ones in height. Selmà likewise rises quite solitary over the plain, and joins no other chains, as far as I know, in any direction. Besides Agâ and Selmà, the country is intersected by several other lower ridges and solitary peaks of sand-stone, running generally in an opposite direction to the granite chains. Among the latter the most remarkable is a solitary high peak of a conical form and a swarthy appearance, which, under the name of Samrâ Hâil, rises, close to that town on its eastern side, to nearly the same height with the granite mountains. Samrâ Hâil ought probably to be identified with the peak which under the name of Al'awgâ, is mentioned by Iakoot as a solitary mount* between Agâ and Selmà. He tells us, in reference to these three mountains, upon the authority of the legends, that a man of the ancient people of Al'amâlîk, called Agâ, was in love with a woman of his tribe, whose name was Selmà, and that they used to meet at her home, until at last her relations, discovering their secret, resolved upon taking revenge for such an affront. Her husband, whose name is not mentioned, and her five brothers, Alghamîm, Almudill, Fadak, Fâid, and Alhidthân, agreed upon waylaying them; but warning being given to the lovers, they fled, together with an old woman, named Al'awgâ, who had been the nurse of Selmà. They were, however, pursued by the six relatives of Selmà, overtaken, and killed, each on a different mountain, which was then called after that person's name who perished on it.

Both Agâ and Selmà abound in wells and springs, around most of which palms and corn-fields are cultivated by Bedawies; but

* The word *hadbá*, occurring in the Arabic text, is still used by the Bedawies of the Sînâ peninsula as a general name for every kind of softer and looser stone, in opposition to the word *sullá*, by which they designate that harder kind of rock, of which the granite mountains of their land consist.

in other parts of the land there are only very few streams of running water, and those generally tepid and brackish. But the water in the wells is, on the contrary, almost without exception, of the most excellent quality, light and soft, and very much accelerating the digestion, if we are to believe the inhabitants of Hâil, among whom it is a common saying that "a man may eat a whole roasted sheep and digest it, provided he drinks a bowl of the water of their town with his meal." When first raised from the earth, where it is found very deep, it is, however, tepid, and requires to be cooled in the hides, which the inhabitants of Arabia use, instead of the potter's wares of Egypt and other Eastern countries. The wells are all dug in circular form, with their mouths built round with stones, and their depth on an average may be estimated at 20 to 25 fathoms. It requires considerable skill to find the rill, or *the sea*, as the inhabitants call it, which the water, gathered from the mountains, follows in its subterranean course; and I have myself seen here, as well as in many other places of Arabia, instances of very deep wells having been dug without any water springing up from their cavity; but the general rule is, that the nearer the granite mountains, the greater the chance of lighting upon the stream. The water is raised by means of the hydraulic machine, exclusively used in Negd and Mesopotamia, which consists of two perpendicularly erected wheels, a larger one over the centre of the well, called Almahâlé, over which runs the thicker cord of Alrishâ, fastened at the top of the large bag, made of the whole of a camel's hide; and a smaller wheel, of a cylindrical form, at the very opening of the well, called Aldarrâg, over which runs a slender rope, fastened at the mouth of the bag, consisting of the long throat of the animal. The ends of the two cords, of which the thicker is generally twisted of slips of a young camel's hide, and the other of the palm-tree, are fastened to a small saddle, made expressly for this purpose, on the hump of a camel, which, being driven down a somewhat sloping course, thus raises the heavy bucket. As the body of the bag is mounted higher by the cord running over the Almahâlé, it pours its contents of water through the narrow throat, bending over the cylinder in a low, flat basin, built of stones close by the side of the well. From this it is led through a gutter, made of grooved-out palm-trunks, into a pond, forming a large reservoir in the centre of the garden, from which it is spread, by means of small channels along the earth, at the pleasure of the owner, to every tree and every bed in the orchard. This reservoir, which always ought to be filled with water, also serves the women for washing and the men for making the many ablutions, which are ordered by the Islâm for different kinds of impurity; and, as it is surrounded by vines and various species of

fruit-trees, it is a cool and very delightful place, greatly adding to the beauty and the comfort of the orchards, which, being almost the only property of the inhabitants and their principal means of subsistence, are attended to with the greatest care. Besides palms, the cultivation of which tree seems to be most suited to the soil of the desert, the people cultivate almost every species of fruit common to this climate, although in but small quantities, in consequence of the scarcity of water and the great difficulty and expense with which it is raised from the deep wells. The fruit, however, is seldom allowed to ripen, but is usually eaten green, in consequence of the great love which Arabs in general have for immature fruit, or because they have no patience to wait for its maturity. Vegetables are also grown to a greater extent than I have seen in any other desert village, especially gourds of uncommonly large size, pumpkins, and different species of melons, of all of which they keep great quantities for the winter. The gardens must, besides, serve for fields to grow wheat, millet, and maize, and many of the richer inhabitants sow also clover in them for their horses. Corn is cultivated in the open plains outside the villages, partly by rain, partly by irrigation; and in good years the produce is nearly sufficient for the settled and the nomadic population of the land. But if the crop fail, they bring their supplies from 'Irâk, generally Mesh-hed 'Aly and Kerbelâ, which are the principal granaries for this land and for Alkasîm, and which also for a great part, provide Negd with its rice. The home-grown corn is, however, and with reason, preferred to that of Mesopotamia for its quality and substance, and is sold at a higher price than the imported. The oats particularly are of excellent quality, and are used here, as in all Negd, very much for making bread. The Benoo Tamîm, who live in this tract, are especially known as skilful and diligent agriculturists, who seldom occupy themselves with anything else. The Shammar are in their turn a very enterprising people, and show a greater propensity for trade and warlike expeditions. Contrary to the inhabitants of other desert villages, the townspeople of Shammar are regarded as superior to their Bedawy brothers in courage and in the art of using arms; and it is doubtlessly more to them, than to the nomads, that the sheïkh family of Ibnu Alrashîd owe the victories they have gained over all their neighbours. When the chief intends making an expedition against another tribe, the people of the villages are first individually summoned, and often more or less forced to engage in the enterprise, every one on his own camel or horse, and with provisions and ammunition of his own for so long a time as the expedition is reckoned to last; and these always constitute the main force of the army. A general summons is then issued to the nomades to assemble at a

certain place and a fixed time, in order to partake in the expedition; and, although they generally come in great numbers, their time not being taken up by other occupations, they are regarded only as auxiliaries, and but little depended upon in the action. When the expedition is finished, every partaker of it is paid according to the decision of the chief, either in money or by a share of the booty; the inhabitants, however, complain that their chiefs, in this, as in many other cases, set aside both the prescripts of the Kur'ân and the old customs of the nation. But even in peaceful enterprises the townspeople take the preference over the Bedawies. In the yearly karawân, which takes the Mesopotamian, and to a certain extent, also the Persian pilgrims, from Mesh-hed 'Aly to Mekká, and, after performance of their religious duties, brings them back the same way, the leader himself is a member of the sheïkh family, and most of the conductors belong to the townspeople of Shammar, whereas the number of Bedawies, following the karawân, is very small. On the other hand, it is in many respects the interest of the townspeople to keep friends with their nomadic kinsmen. For the various enterprises in which they continually engage, they want a great quantity of camels; and as it is nearly impossible to keep these animals in villages so poor as those in the desert, they are obliged to give them in charge to the nomades during the time they can dispense with them. As, however, the camel is the only animal they use for the irrigation of their fields, they must always, according to the extent of their plantations, keep one or more of them at home; but after every three months, which is the term the animal can stand that wearisome labour, they exchange it for a fresh one. The poorer of the villagers, who cannot afford to buy on their own account, the camels they stand in need of for irrigation, hire them for the term of three months from the Bedawies, who are paid for this, and for the charge they take of other animals, delivered to them in order to be pastured with their own herds, either with ready money, or (and which is more usual) with dates and corn, when harvest time comes. Thus continual intercourse and the most intimate relations, grounded upon mutual interests and reciprocal assistance, are kept alive betwixt the two classes of Shammar, which has greatly contributed to the increasing power of that tribe. I regard the Shammar as unquestionably one of the most vigorous and youthful tribes at present in Arabia, and their power and influence extend yearly more and more over their neighbours. From Alkasîm as far up as to Hawrân, and from the lands of Ibnu Sa'ood in the eastern parts of Negd, as far as the mountains of Alhigâz, the nomades have all been subdued and obliged to acknowledge the sway of Ibnu Alrashîd by paying him the Zakà tax. From far and near the nomades and their sheïkhs

bring their disputes and litigations before the tribunal of Ibnu Alrashîd to be settled by him and his Kâdî, and during my sojourn here there were about 200 persons from the most different parts of Arabia, entertained as guests by the liberal 'Abd Allah, while waiting for his decision in some suit or other. His own household consisted of nearly 200 persons, the greater part of whom were manumitted Negroes and Egyptians who had been left behind the army of Ibrâhîm Pâshâ, all able-bodied men, skilled in the use of arms, experienced in war, and ready to obey blindly the commands of their master. Through this body of servants, constituting, so to say, his life guard, and through his own personal influence, 'Abd Allah had the power to execute his will and to enforce obedience to the sentences he passed, and, in case of disobedience and obstinacy, to punish the refractory. I have myself seen a number of nomad sheïkhs imprisoned in his palace, on account of their refusing to pay the Zakà, and both hands of an inhabitant of Hâil were cut off for being suspected of conspiring against the family of Alrashîd; and I often witnessed how the sheïkh-judge himself chastised with a stick his subjects for meaner faults. I mention this only with a view of pointing out the great difference there is, between the power which the Shammar sheïkh exercises over his tribe, and that which ordinary Bedawy chiefs have over theirs. The latter have no other influence or command over the meanest of the tribe, nor any means of enforcing obedience to decisions, than their own eloquence and power of persuasion, and the authority and credit their own personal qualities and merits have procured them among their people.

During about ten years, as the inhabitants of Hâil told me, 'Abd Allah bnu Alrashîd had governed the Shammar tribe. His predecessor, a cousin of his called Sâlih bnu 'Aly, had, out of fear for the great credit and influence 'Abd Allah possessed among the people, exiled him from the land. 'Abd Allah resorted to Alriiâd, regarded, after the destruction of Der'iyé, as the capital of Negd and the residence of the Wahhâby princes of the family of Sa'ood, where a prince then reigned called Turky, a son of the hapless Sa'ood and father of the present governor of Negd, Feisal. Here 'Abd Allah joined in a warlike expedition which Feisal made to the environs of Alahsá. While still on the expedition, the report was brought to them that Turky had been killed by his cousin, Almeshârî, who, declaring himself governor of Negd, had taken possession of the palace of the murdered, after having driven away from it his wives and women and other household. Keeping this news secret from their followers, the two leaders hastened their return to Alriiâd, where they, after a short fight, and chiefly by a stratagem, contrived by

'Abd Allah. made themselves masters of the castle and the person of Almeshârî. The usurper was put to death, and Feisal proclaimed governor of Negd by 'Abd Allah from the summit of the mosque, and acknowledged by the people in this dignity. Installed in his government, Feisal now declared 'Abd Allah, to whose prudence and dexterity he chiefly owed his success in the whole affair, sheïkh of the land of Shammar, instead of Sâlih, who was deposed; but as he for the moment had no assistance to offer his friend, nor any power to put him in the place he had appointed him to, 'Abd Allah returned to his native land quite alone, trusting solely to his own personal qualities and the credit he had among his countrymen, for getting the better of his cousin Sâlih. He had many hardships to endure here, part of which he has celebrated in vivid lines of his own composition; during the day he hid himself in the mountains of Agâ, and at night he descended to the villages of Hâil and Kafâr to the houses of some of his friends and adherents, who, in the mean time, roused up the people in his favour. As soon as a sufficient party was brought over to his side, he made head against his adversary and vanquished him. Sâlih, seeing himself deserted by his tribe, fled with his three brothers towards Almedîná, in hope of receiving assistance from the Turkish Pâshâ governing that town; but they were overtaken on the way in the small village Kasr Alsuleimy, by 'Abd Allah's brother, 'Ubeid, who killed them all but one, called 'Isà, who, contriving to escape, arrived at Almedîná, where the Pâshâ received him kindly and promised him Turkish troops to reconquer his land. In the mean while 'Abd Allah also had sent his brother 'Ubeid to negotiate with the Turkish Pâshâ, and as he was able to make a higher offer than his antagonist, consisting, I was told, of 2000 camels, a sum of money, and other presents, he was constituted sheïkh of Gebel Shammar. The Turk retained 'Isà as his guest, but in fact as a hostage, by means of whom to force 'Abd Allah to fulfil his promise. Since that time 'Abd Allah remained in undisturbed possession of the province until his death, which happened in the summer of 1847. He was succeeded in the place by his two sons, Talâl and Mit'ib, who now governed the land together. They acknowledge, at least nominally, the supremacy of the chiefs of the family of Sa'ood, residing in Alriiâd, and call themselves in a manner their vassals, although they give no token of their allegiance, but send occasionally volunteers to assist them in their wars, and a small share of the tribute, the Shammar extort from the helpless Persian pilgrims that take their way to Mekká. Sometimes also they allow them part of the booty they take in the warlike expeditions, in which they continually embark, on their own account, against such tribes and villages as have not yet entered

into their confederacy. The later Sa'oods have in general lost much of the vigour and resolution, which, in such a distinguished manner, characterised the first princes of the family; and Feisal, the present sheïkh of the Negd and the Imâm of all Wahhâbies, though respected for his strict adherence to his religion and rather liked for his lenient and clement character, is, upon the whole, thought less of, than the energetic 'Abd Allah, who was by most people admitted to be the *de facto* governor of Negd. And it was indeed to his prudence and energy and to the undaunted courage of his brother 'Ubeid, that the Shammar owed the great preponderance they, although comparatively a small tribe, have gained over all nomads and villages in their neighbourhood. By means of the Zakà tax, which the family of Alrashîd levies upon every subdued tribe and conquered village; with the booty they have gained from their expeditions, and the confiscations they have made of Sâlih's and his partisans' possessions, they have become one of the mightiest and most influential sheïkh families in all Arabia. But power and wealth alone did not procure 'Abd Allah this great authority among the Arabs; he owed it far more to his own great personal qualities, his intrepidity and manliness, his strict justice, often inclining to severity, his unflinching adherence to his word and promise, of a breach of which he was never known to have rendered himself guilty, and, above all, to his unsurpassed hospitality and benevolence towards the poor, of whom, it was a well-known thing, none ever went unhelped from his door. These virtues, the highest a Bedawy can be endowed with, 'Abd Allah was endowed with in a high degree. Nevertheless, he had many adversaries among the surviving members of his predecessor's family and the clan of Ga'far, to which they belonged, whom I heard very often complain of 'Abd Allah's arbitrary government, and particularly of his brother 'Ubeid's roughness and cruelty. Talâl and Mit'ib, the two present governors of the land, were extolled as possessed of the same great qualities as their father, but as of a milder and softer character, and I greatly apprehend, particularly in case of their uncle 'Ubeid's death, that they will not be able to repress the discontent which commences to ferment against them. Whatever be the result, it is certain that, before 'Abd Allah's time there was no safety for person and property in the land, and not very old men remember still the times, when no one ventured to go from Hâil to Kafâr without a company of 10 to 20 armed men; a journey of only 3 hours, which I myself walked quite alone. There is a common saying among the present inhabitants, that one may go from one end of their land to another, bearing his gold on his head, without being troubled with any questions. Formerly, I was told, the villagers were divided into parties, who lived in open defiance,

plundering and robbing each other, on every opportunity, in the streets and in the very houses of their quarters.

Ever since the first promulgation of the Wahhâby doctrine, the Shammar have been its most devoted followers and champions, who, partly as brave and valiant combatants in the armies of the Sa'oods, partly and more particularly as belligerents on their own account, have very much contributed to its spread in the western parts of the peninsula and in supporting it in later times, when the ardour of its adherents commenced gradually to abate. Though the boisterous zeal and the unrelenting austerity with which the first preachers and protectors of this creed stepped forth to propagate their puritanism, have gradually now slackened, and the extravagances and extremes, naturally inseparable from the promulgation of every new doctrine, to a great extent have been erased by time, Wahhâbism is still very strictly adhered to in the land where it first made its appearance, particularly so in the eastern parts of Negd, in the dominions of the family of Sa'ood. Here I was told that the people not only held true to the dogmas and tenets of their faith with an unflinching belief in their internal truth, but also with tenacious punctuality still conformed themselves to most of the severe prescripts ordained to them with regard to outward ceremonies, and a greater simplicity of life and manners. In the first early days of the Wahhâbies, tobacco, for instance, was prohibited without any reserve, as a plant grown from the urine of Iblîs; the use of silk was interdicted men altogether, and women were permitted to wear it only to a certain extent; poetry, music, and other amusements were condemned; restraint was put upon rice, as a food not in use among the Arabs at the time of the Prophet and, as they contend, never eaten by him; oats were recommended as preferable to wheat, and as the most suitable nourishment for a true Wahhâby; friendly intercourse with every other sect of Muslims was regarded as illicit, and war preached against them as a holy duty, so long as they refused to abjure the worship of saints, &c. To these and other restraints the people of Hâil told me, not without a certain sneer of derision, that the subjects of the Sa'oods still submitted more or less; but they have long since been declared void, or at least, greatly modified among Shammars, to whom the continued intercourse with 'Irâk, Higâz, Egypt, and the strangers that visit their land, has imparted a greater liberality of opinions. Thus, for instance, a man may perform his devotion in a dress which is mixed with one-half silk; at other times he may dress wholly in silk; but the prayers he says in such a dress are not acceptable. Tobacco is tolerated, and seems to become more common again, though a smoker is generally disliked and not allowed to perform the part of Imâm or rehearser of the prayers, before a congregation. The greater part of the people, however, detest and condemn still the

use of tobacco, and I remember a Shammar Bedawy who assured me that he would not carry that abominable herb on his camel, even if a load of gold were given him. The two principal tenets of the Wahhâby doctrine, to which the Shammar still unalterably adhere, are the rejection of all saints, even the Prophet himself, as mediator between God and man; and 2ndly, the necessity of saying the prayers publicly in a mosque, in common with a congregation, and not alone at home, as is the general custom with other Muhammadans. In consequence of this rule every different quarter in the villages is generally provided with a mosque of a smaller size, where the people assemble at the time of the five daily prayers, in order to perform their devotion in common; and in Hâil there is besides, a larger one in the palace of Ibnu Alrashîd himself, where the whole congregation meets on Friday to make their holy-day prayer and hear the sermon delivered on that occasion. At this service some scores of women also generally assist, forming rows behind the rest of the congregation; but all other prayers it is regarded as more decent for the sex to perform by themselves alone at home. The Wahhâby women are very punctual in observing the religious duties; and while in other Arabian lands I can scarcely remember having seen a woman perform her devotions at home, far less in a mosque, I saw the greater part of those in Gebel Shammar and Algawf, very punctually go through their five daily prayers. The Wahhâby princes keep a strict eye upon assembling the people to the Friday prayer, and there were in Hâil many instances of 'Abd Allah's having severely punished several men for default of attending to that service. In the great mosque of Hâil the prayers are said by an Imâm, whom the prince himself appoints and pays. He is generally a man who has received some literary education in Almedîná, Alkâhirá, or Alriiâd, which principally consists in learning the whole or part of Alkur'ân by heart, and the knowledge of all the petty and minute ceremonies that accompany the Muhammadan ritual, besides other questions of religious concerns, founded on their code and the traditions of the Prophet, and made up into articles of faith by Ahmad Alhanbaly, the founder of the orthodox sect of the Wahhâbies.* He ought moreover to be versed in the controversies between his co-religionists and the other Muslims, which however, as already we have seen, may now be reduced to very few points. But this is generally all the literary education which the Imâm possesses, and it was in vain I tried to converse with him about other branches of Arabic literature, and even in the grammar and obscure expressions made use of in the present language of the Bedawies, I seldom obtained from him satisfactory solutions of my doubts.

* Al Hanbali was one of the founders of the four orthodox Moslim sects. 'Abdul Wahhâb probably belonged to his sect, but lived scarcely 200 years ago.—E.

The other representative of Islamitic learning in this land is the Kâdî, whom also the sheïkh prince alone constitutes in his office. He is likewise generally educated in some of the greater neighbouring towns, where he, under learned men, has studied the jurisprudence of the orthodox Hanbaly sect. But in matters without the strict compass of his science, he is quite as ignorant as his spiritual colleague. As I have remarked in another place, the preachers are throughout Negd, called Khatîb; the word Imâm is here reserved for the princes of the family of Sa'ood in their quality of Lords spiritual and temporal of the Wahhâbies. Neither is the name of sheïkh, which in all Arabic lands is given to learned and religious men, used amongst the Wahhâbies or the Bedawies in general in that sense; but instead thereof they are here called devotees. Except the Khatîb and the Kâdî, it is extremely rare to meet with a literary man among the inhabitants of Gebel Shammar; they are in general less instructed and less versed in the Islamitic sciences, than the people of the Turco-Arabic and Persian countries, though the art of reading and writing is very common among them. There are, however, no public or private schools in the land, nor any lectures of consequence delivered in the mosques. The children are instructed by their fathers in the first principles of religion, and from early years taught to read the Alkur'ân and to recite the prayers. Whatever they else possess of lore and knowledge, they acquire for the greatest part by oral communication with the elder, from whose company the young are never debarred in Arabia. When I first came among the nomads, I was very much surprised to see how children of three to twelve years of age, not only were admitted into the company of old men and allowed to take part in their conversation, but were also consulted respecting matters seemingly above their reach, and listened to with attention. They live on the most familiar and intimate footing with their parents; and neither have I witnessed in the desert the disgusting scenes, so usual in Egypt, of an enraged father beating his son, nor the servile usage of Turkish children, who are never suffered to be seated or even to speak in the presence of their haughty fathers. And with all that, I nowhere in the world saw children more sensible and good-natured and more obedient to their parents than those of the Bedawy. Notwithstanding the prejudices entertained by Islâmites, and especially by the Wahhâbites, against poetry, that art is at home in Gebel Shammar; men and women compose verses very often extempore, and every one, young and old, knows a quantity of songs by heart; the princes of the family of Alrashîd are poets, as was of old the celebrated prince and poet, Imroo Alkeis, who formerly reigned over them. Books are very rare at this place, as in the desert in general, and, except the Kâdî, I found few who possessed other

manuscripts, than Alkur'ân. The library of the Kâdî, of which he was extremely jealous, consisted however, as far as I could ascertain, exclusively of works of jurisprudence, all of which he assured me he had bought in Mesh-hed 'Aly, and all inquiries I made for historical works were in vain. Besides Alkur'ân I occasionally have, in the Wahhâby countries, fallen in with other works, written by learned descendants of the founder of Wahhâbism, upon religious subjects respecting their creed. These men, generally known among their followers by the name of "the children of the sheïkh," live for the greater part in Alriiâd, where they in the mosques deliver public lectures in different branches of Islamitic learning. Muhammad, son of 'Abd Alwahhâb, was especially named to me as author of many learned works, of which the principal are: 'The Book of Unitarianism;' 'The Unveiling of Doubts;' 'The Book upon the Greater Sins;' 'The Gardens of the Pious;' and 'The Book of the Forty Traditions of the Prophet.' Of these works I did not, however, succeed in obtaining any, except the one named in the second place; and to judge from that treatise, there are few or no new ideas contained in the books of the learned men of the Wahhâbies. It contains in about a score or two of pages scarcely anything but verses extracted from Alkur'ân, in order to prove that the doctrine of saints, which in course of time has been introduced into the originally unitarian Islâm, is contrary and repugnant to the holy code. The author of this book, Muhammad, had four sons, Husein, 'Aly, 'Abd Alrahmân, and 'Abd Allah, of whom 'Abd Alrahmân, with a nephew of his, 'Abd Allatîf, in early years was brought to the capital of Egypt and educated there in the mosque of Alazhar, where he still in the year 1849 delivered public lectures on the Hanbaly jurisprudence. 'Abd Allatîf was by the Egyptian Pâshâ in the same year permitted to return to his native country, and, as I was afterwards informed, constituted kâdî of the province of Alahsâ. A grandson of 'Aly, 'Abd Alrahmân, son of Hasan, is, as I was told, at present (1845) the kâdî in Alriiâd.

Of the many divisions which the Shammar tribe contains, the principal and the mightiest are the two of Al'abdé and Alga'far. To the former belongs the sheïkh family of Alrashîd, and I was told that the bulk of the clan was still to be found in the province of Asîr, under the name of 'Abîdé. Other tribes, living in the province of the mountains, are the Suweid, who are renowned in the whole land for the excellent butter they prepare; Singâré; Aslam; Toomân; Armâl, mentioned before as the principal inhabitants of Gubbé and other places; besides a large number of Muteir, Subei', and other tribes from the more eastern parts of Negd, who live intermingled here with the Shammar. Some of the people here contended that the Shammar, who inhabit the province of the two

mountains, are but the offspring of the tribe, and that the Sufook, who now live in Mesopotamia, are the noblest and the mightiest of its clans. To Sufook belonged also one of the most renowned Bedawy heroes of modern times, called Garbá, whose martial exploits and chivalrous deeds are celebrated in a number of songs, still living in the memory of the people. In the earlier times of Wahhâbism they emigrated, I was told, from their own land to Mesopotamia, where they still constitute a numerous and powerful tribe, very much dreaded by the Turkish Pâshâ of Baghdâd. Alzakârît, another mighty clan of Shammar, which has emigrated from this land, live at present in the neighbourhood of Kerbelâ. Except these two tribes I am not aware of any others having left their land in Negd in greater bodies; but individuals and families are almost daily emigrating from this to Mesopotamia, where they join their kinsmen and continue their nomadic life along the shores of the Euphrates and Tigris, or gradually settle in the villages. And it is rather a curious fact that they never take the other direction towards Syria or Egypt, to neither of which lands I ever heard that a colony, or even an individual of the Shammar tribe, had emigrated. But of all the cultivated lands that surround the desert of Arabia, there is none with which, on account of its geographical position, it was more natural for the inhabitants of the two mountains to keep up intercourse and communication, than with Mesopotamia. Following the rich pasture-grounds of Aldahnâ, to which the Bedawies of this province are obliged always to resort with their numerous herds, they gradually moved from one place to another, higher up towards the N., till they imperceptibly approached the two rivers, where the wealth and fertility of the country induced them to take up their abodes, instead of returning to their own poor land in Negd. Mesopotamia is the nearest and cheapest land where to seek for food and provisions in case of a rainless year with failing crop, and where to sell or exchange the camels, they can dispose of, for other wants and luxuries. Greater karawâns of Shammar resort to this land generally four different times in the year, and smaller parties and individuals pass this way almost daily. In the account I have given of my journey from Gebel Shammar to Mesh-hed 'Aly,* I have adverted to the two roads which are generally followed from this to Mesopotamia, and though either of them is anything but easy and sure, they are both shorter and more practicable than those to Syria and Egypt. Higâz and the eastern parts of Negd, to which lands the access from this is unquestionably the most commodious, were always too poor to induce the people to immigrate, though the holy places which the first mentioned country

* In the 20th Volume of the Journal of the Royal Geographical Society.

contains, in every age had charms enough to allure them to yearly visits. We see on the contrary in the old history of the nation, that the different tribes, which one after another have inhabited and possessed this land, always came from, or at least through, Higâz, and after a longer or shorter sojourn in the two mountains, continued their route of emigration towards the north, generally so that the originally Kahtânian tribes took the direction to Mesopotamia, and the 'Adnânian, that to Syria and Egypt. If the Arabs were a maritime people, it would be easy to keep up a communication with the two rich countries of India and Egypt by sea from the two sea-port towns, Wegh on the Red Sea with a good harbour, and Alkatîf on the Persian Gulf; and if in some future age, the isthmus of Suweis be cut through, and an over-land communication through Arabia be brought about between India and Europe, I think the most natural way would be one, that joins those two ports by rail, through a land of about 18 days' camel's march, as flat and as smooth as a floor. Even now there is, notwithstanding the very imperfect state of Arab navigation, such a communication, to a certain degree, kept alive with India and Egypt, principally through Giddá and Albasrá. With Syria the Shammar people entertain almost no intercourse; and among the population of Hâil, which consists of men from the most different countries, there is but one from Syria. The relations which in later years have been opened between this land and Egypt, are partly owing to the wars Muhammad 'Aly carried on against the Wahhâbies, but particularly to the fancy 'Abbâs Pâshâ, the present Governor of Egypt, has taken to the horses of Shammar, which, if I may give an opinion, fully deserve the credit they have, of being the finest and swiftest of the noble Arab race. These animals are more numerous here than in any other part of Arabia which I have visited, and most of the wealthier inhabitants possess a larger or smaller number of them. The stud of 'Abd Allah alone, I was told, contained nearly 200 horses, quartered upon the different villages of his land. A couple of these animals are sent yearly to Almedîná with the pilgrim-karawân as a present for the Turkish Pâshâ; another couple to Mekká for the Governor of that town; sometimes a third for the Pâshâ of Baghdâd; and during the late years 'Abbâs has sent an expedition almost every year from Egypt, in order to purchase a number of horses for his extensive stud in Alkâhirá. Others are occasionally presented to the princes of the family of Sa'ood, or sold privately to the Bedawies of the neighbourhood; but except this comparatively small number of horses, exported from this to the adjacent countries, I am not aware that any others of them pass over the limits of their own land. The camels of Shammar, though far inferior to those of 'Umân, and even to those

of the eastern parts of Negd, are of a good breed, and great quantities are sold in the markets of Almedînâ and Mekká during the pilgrimage. The average price of the camels is from 10 to 40 Spanish dollars, whereas that of the horses varies from 20 to 3000. Besides horses and camels, the Shammar townspeople keep asses, which they, however, only use for short trips from village to village. Mules I never saw here, and the oxen are extremely rare and of the same poor race as that of Algawf. Sheep are numerous, and very often the flocks are intermixed with tame gazelles, which associate with the domestic animals on the pasture-grounds, and gradually become tamed and follow the others home. Dogs are held in greater abhorrence here than in any other Moslim land I have visited, and I can scarcely remember having met with any of these animals in a village. Timid and emaciated, with the appearance of a perfectly wild animal, they rove about in the deserts, surrounding inhabited places, as if willing enough to seek the company of man; but are sure of being pelted with stones and driven away, as soon as seen. This hatred is probably grounded in the austere Hanbaly doctrine the Shammar profess, which condemns even the sight of dogs as impure. Domestic birds are as rare in the villages, as the wild ones are in the desert, and the only poultry I saw were hens of a tolerably good kind. In other desert villages I can scarcely remember having met with any kind of poultry. The granite mountains abound in game, particularly wild goats and a small animal, called *webar*, which are both hunted and eaten by the people. Other wild animals occurring here are the hyena, two different species of wolf, called Dhi'b and Fahd, the fox and the jackal, the two latter more seldom; but the lion does not extend as far as this. Along the shores of the Euphrates I was told it sometimes is met with, and I have fallen in with one myself in the desert, about 2 days S. of Mesh-hed 'Aly. Ostriches are hunted by Sulabâ and Sherârât in the Dahnâ desert, especially in the environs of Algawf, and this vast sand tract abounds besides, in its whole extent, with hares, gazelles, antelopes, rats of a very large size, and a large kind of lizard, which are all used as food by the Bedawies.

Of the numerous different tribes that formerly possessed this land, the present inhabitants mention the Benoo Ta'mar, Benoo Sâ'adé or Alsâ'adé, and Benoo Ferîr or Alferîr, as the principal and most ancient; but in what order they followed one another, or at what time and how long they inhabited it, every one in its turn, they cannot tell; and the traditions, far from relating any historical facts of these tribes, leave us in uncertainty, even whether these names denote whole tribes, or chief families, who in olden times have held their sway over the land, in the same manner

as the clan of Al'abdé and the family of Alrashîd in our days do. Besides these three, the great and renowned tribes of Benoo Tay, Benoo Keis, Benoo Temîm, and Benoo Hilâl are by the present Shammar reckoned among the old inhabitants of their land. Though the notices the Arab authors give us of the province of the two mountains be but scanty and inconsistent, and those of the traditions are unsatisfactory and insufficient to elucidate its old history, I will try to give a short summary of the principal facts I have discovered. As to the Benoo Ta'mar, generally regarded as the oldest inhabitants of the land of whom a tradition has been preserved, they are obviously the same people that Ritter mentions upon the authority of Burckhardt by the name of Tamour, as an ancient giant tribe in Negd and Syria, to whom the structures of the old deep wells and other ancient edifices, occurring here and there in central and northern Arabia, ought to be ascribed. The first place where I heard the name of this people mentioned, was at Gubbé, whose inhabitants reckon them among the old possessors of their village, stating that they dwelt in the mountain Muslimân; but neither there nor in Gebel Shammar were they regarded as giants or as founders of the old edifices, which, wherever they are met with here, are invariably attributed to Suleimân and his followers. In Arab authors I have not found even their name, nor does it occur in the learned work of M. Caussin de Perceval, who, more critically than any other before him, has scrutinized the old history of the Arabs. The names of two chieftains, Khadrâ and Toonis, are almost all that tradition has handed down to us in reference to the Benoo Ta'mar. The before-mentioned tale, which Iakoot cites with respect to Agâ, Selmà, and Al'awgâ, seems to point to an emigration of the 'Amâlîks into this land, so much the more as the brethren and the husband of Selmà, instead of returning to their own land, probably in Alhigâz, after having accomplished the bloody deed of revenge, are said to have taken up their abodes and settled in places which, no doubt, ought to be sought for in the neighbourhood of the two mountains. And it were in fact incredible, that this old and mighty people, whom we, after the scanty notices the Arab authors have preserved of them, find in Bahrein, 'Umân, Syria, Higâz, and as near to this province as in Teimâ, Kheibar, and Almedînâ, should not have possessed the two mountains also. To the 'Amâlîks belonged the old Gebâbiré, giants, who are generally regarded as the same as the Enakim of the Bible. If therefore the Benoo Ta'mar really were giants, or, which in point of fact is indifferent, be regarded as such by the present Syrians, from whom Burckhardt had his information, or if they, in conformity with the tradition, may be considered as the oldest traditional aborigines of these parts of Arabia, we may, not without probability, assume them to

be the 'Amâlîks, or descendants of them, though they are not mentioned among the few tribes of that people, of which Arab authors have preserved the names. But if the history of this people, as of ancient Arabia in general, be defective and disfigured by chasms, we have no notices whatever with respect to the province of the two mountains, of which, as far as I know, no mention occurs in Arab authors, before the commencement of the Christian era, when the 'Adnânian nomads, whose ancestor 'Adnân, after the computation of M. Caussin de Perceval, was born about 130 A.C.N., seem to have begun their emigrations from Higâz into Negd. The 'Adnânian people, the Arabic authors tell us, led, all except the later Kureish, who lived in Mekká, a nomadic life, and were the exclusive possessors of Negd, until the Kahtânian tribes from Iemen commenced to immigrate into their land, and gradually gaining the ascendancy, pushed them on higher up towards Mesopotamia and Syria. In the middle of the third century we find the 'Adnânian tribe of Benoo Asad, the birth of whose ancestor Asad, son of Khuzaimá, is placed at the year 101 P.C.N., settled in this province. The Shammar do not mention these Benoo Asad among the old inhabitants of their land; but others, for instance Rabî', from whom I myself heard many of the present Bedawies derive their lineage, Keis, Temîm, and Hilâl, who are known to have lived in the two mountains, and who one after another, though in later times, rose to authority and power, were all akin with them and descended from the same stem of 'Adnân. Arab authors are, on the contrary, unanimously agreed in that point, that these Benoo Asad were in the possession of this province at the time when the first Kahtânian tribe immigrated. This tribe was the renowned Benoo Tay, who had left their own country, Gurf in Iemen, shortly after the emigration of their kindred tribe Azd, probably in consequence of a year of famine, or for other pressing urgencies, and had come to the two mountains between 245 and 250 P.C.N. The first place they arrived at here was Semîrâ, in the S.W. end of the Selmà chain, where they waged war against the former inhabitants, Benoo Asad, vanquished them, and took possession of the granite mountains, which at that time were probably the richest and best cultivated parts of the land. To this tribe belonged the clan of Alferîr, whom the Shammar mention with a certain preference amongst their ancestors. It is only upon the authority of Iakoot that I refer the Ferîr to the Tay tribe; for except Ritter, who, in his learned work, Erdkunde, xiii. 347, after Almushtarik, names Alferîr as a people in Agâ, I have nowhere else found any mention made of them. Iakoot says that Alhufeir is a water in Agâ, belonging to Benoo Ferîr of Tay; and if there be no fault in the manuscript, it is obvious that we cannot ascribe to this people such a pedigree as the

Shammar give them; but we may perhaps regard them as the first tribe of Tay that gained an ascendency over the other inhabitants. The Kahtânian immigrants gradually multiplied and spread over the whole province, and seem very soon to have attained an undisputed supremacy over the 'Adnânian tribes, with whom they met on their first arrival. The name of Benoo Asad now gradually disappears from the history of this land; the tribe vanishes, and Tay takes possession, or inherits, as the Arabic expression is, their land in Negd around Alkarkh, the position of which place, however, is uncertain; but other tribes of the 'Adnânian root seem to have continued in their land and to have thrived in conjunction and in friendly relations with Tay. It could not possibly be otherwise, when we consider that the other and principal parts of Negd were still inhabited by the 'Adnânians, whereas the Iemanian Tay were immigrated strangers who lived amidst them. When, in the meanwhile, overpopulation forced the mixed tribes to emigrate, the nomadic 'Adnânians were the first to leave the country; and in consequence of this, we find the Temîm already, in ante-Islamitic times, nomadizing in the Dahnâ desert between Alkoofá, Albasrá, and Iemâmá. Other emigrations followed, and the Temîm were pushed farther on into Mesopotamia, where part of them continued their nomadic life; but the bulk of the tribe vanished finally in the villages, and it is in this state we still find remains of them in that land. When quit of the Temîm, the Tay occupied the pasture-grounds of Dahnâ. On the other side, the Tay spread towards Wâdî Alkurà, and made themselves masters of the land of Ghatafân; so that, at the time of the first promulgation of Islâm, we find the Tay in possession of nearly the same lands as those over which the Shammar extend in our days. The only province in this neighbourhood where the Tay and other tribes of the two mountains seem not to have entered, is Algawf, a place which always appears to have been avoided; and we may suppose that the families and clans that emigrated hence into Syria, followed the way over Hîrá and Mesopotamia, which still in our days is generally taken by the tribe of 'Ukeil, in their travels and emigrations from Alkasîm to Syria. Those who, in their emigration from this land, took the course towards Egypt, naturally followed the way over Hîgr or Tebook, along the eastern descents of the barrier mountain. The Alsâ'adé were one of the latest families of the Tay that held sway over this land, in the times next preceding the promulgation of the new religion. Alkalkashendy mentions Benoo Sâ'adé as descending from Ghaziá, a clan (of Haniy) of Tay. Alhamdâny, quoted by that author, refers Benoo Sâ'adé to the Syrian prince family, Al Fadl, who we know derive their origin from the same Haniy. A kindred family to Ghaziá, called Hayá, were, according to M. Caussin de Perceval, at the head

of the whole race of Tay at the introduction of Islâmism. When at that period the enthusiastic professors of the new religion commenced to extend their conquests to the countries beyond the borders of their desert, tribes of Tay, as of other nomads, joined their armies, and were thus dispersed in different lands. A great part of the Tay seems, however, to have remained in Northern Arabia; for they are said, in the sixth and seventh centuries of Alhigrá, to have possessed the preponderance over the nomads of Syria and 'Irâk, in which latter land scattered remains of them are still met with in our days. A small part of the tribe may be supposed to have remained in the land of the two mountains, for tradition tells us that, when Shammar first came in here, they met with Tay and Keis. The Shammar had, according to their statement, left their homes in Asîr in Iemen in consequence of a famine, and, following the same way that the Tay and other Iemenian nomads had taken before, arrived in this land in the middle of the second century of Alhigrá. As the strength of the people that now occupied the two mountains was probably much impaired by the considerable emigrations which had been made from their land, they appear not to have possessed power enough to repel the invasion of the Shammar, who, after their own assertion, engaged in war with them, and having proved themselves their equals, were allowed to take up their abodes in the land. They lived now for upwards of 30 years as friends with the old inhabitants, but afterwards new disputes arose and occasioned a new war, in which the Shammar obtained the victory. The Tay and Keis were expelled from the land, or, in the same manner as the Temîm, forced to move to the Dahnâ desert and Mesopotamia, and Shammar remained alone in the possession of the two mountains. This is the substance of the current tradition; but the Arab geographer, Ibnu Sa'îd (+685 Higrá), tells us that at his time, this province was inhabited by a great number of different tribes, spreading far and wide "over the plain land and the mountains in Alhigâz, Syria, and 'Irâk." Though the names of none of these tribes are mentioned by Ibnu Sa'îd, we may with much probability assume that the Shammar were of their number; but to what clan or what family the sway over the land belonged in those times, does not appear. Neither authors nor the traditions give us any suggestion as to the time when the Shammar first rose to authority and gained the supremacy over the other inhabitants. Whether we ought to consider this people in any connection with the old Himiaritic king Shammir, son of Al'amlook, as Ritter seems to do in his 'Erdkunde,' xiii. 353, I will not venture to decide. The only Arabic work where I have found the name of this, in our days, so powerful tribe, is the 'Genealogy' of Alkalkashendy, who mentions the Benoo Shammar only, as Arabs living in the two Tay mountains, Agá and

Selmà, without leading their pedigree up to any known stem of Bedawies, or supplying us any further information about them. But the history of the Shammar does not probably differ from that of other tribes, who inhabited this province before them, or from that of nomadic people in general, in whose life, notwithstanding the continual changes it is subject to, there always prevails a certain succession of similar events always recurring in unvaried routine. When the impulse to a new political life and to emigrations in larger bodies, which Islâm had given the nomads, in course of time became slackened, and the bonds with which the new religion had united them, perhaps for the first time in their history, to a nation, had gradually been loosened, the inhabitants of the desert seem to have relapsed into the state of separation and discord, which had formerly existed among the different tribes, and into their old Bedawy habits of petty feuds, to which the holy wars had put a stop during the first centuries after the Prophet. This probably was the case with the many different tribes that after the Tay are said to have taken possession of this province. Too distant from the remote lands to which the theatre of the holy Muhammadan wars had been transferred, to partake in the conquests the new religion continued to make in later centuries, when its cause had been espoused also by other nations than the Arabs, the inhabitants of the desert and those of the two mountains are lost sight of in history. But it was about this time, between the 7th and the 12th centuries of the Higrá, that probably the inhabitants of this province gradually exchanged their nomadic life for fixed abodes, and gathering in small communities, commenced to build the villages which are now spread over the land. Most of these villages seem to be of a later date; and only two of them, Feid and Mawkak, occur in Arab geographers; the others, though a great number of them are pretty large towns, are not mentioned at all, or only as water-places, belonging to some tribe or other. Certain and consistent notices of the Shammar and their land are wanting until the Wahhâby puritanism once more united the inhabitants of Negd into one people, and urged them on to holy wars against the neighbouring nomads and the opulent countries, bordering on their desert; and it was not before this date that the Shammar probably rose to the authority and power they have ever since possessed in the western parts of the peninsula. In the present political state of the province and the relations which prevail between the different tribes, that live here and in the surrounding deserts, we may still trace almost every outline of its old history. The Iemenian Shammar predominate in the land, as formerly did the Tay, and possess for the greater part, the villages, of which however the 'Adnânian Benoo Temîm are suffered to occupy no less than four of the most considerable. The population of the

villages is, besides, very much mixed up with immigrants from the most different quarters of Arabia, but being too few to defend their independence, they have vanished into one of the two principal tribes, generally Shammar. But the vast pasture-grounds and the extensive desert-plains, that on all sides surround and intersect the province, are for the greatest part occupied by the 'Adnânian 'Enezé, who stand in the most intimate brother-relations, not only with such of Shammar as lead a nomadic life, but also with those settled in fixed abodes; and although they pay the Zakà tax to the chief sheïkh of Shammar, and thus in a manner acknowledge his supremacy, they always, and in every other respect, stand their ground as independent nomads. On the one side we see that the mighty tribe of the Ruwalá in Haurân, family after family, emigrates into Syria; while, on the other, the powerful Sufook and Zakârît of Shammar, driven out from their own land by religious contests, to the confines of Mesopotamia, are preparing, to a certain degree, to leave their nomadic tents for fixed abodes in the villages of that country, and the parent-stock of the former, as well as the latter, lives still in the land of the two mountains or in its neighbourhood.

We see thus that the province of the two mountains, from the earliest times of Arabic history, was a thoroughfare for various tribes, who immigrated from different quarters of the peninsula for a longer or shorter period, settled here and lived together till over-population and pressing necessity, or their own uneasy minds inflamed by new ideas or the prospect of rich booty, again drove them out to further emigrations and warlike expeditions towards the opulent countries that on all sides surround the desert. It was in Negd and principally in this province, that the two main stocks of the Arab nation, the Kahtânian and the 'Adnânian, we may perhaps say the Iemenian and the Syrian tribes, met one another and amalgamated into that vigorous race, which soon commenced to regenerate a great part of Asia. We know that the Islàm, this mixture of religious creeds, borrowed from Syria, and probably from old Arabic ceremonies, though revealed in Mekká, was first embraced and protected by the inhabitants of Almedînâ, who in their character and manners claim the greatest kindred with the nomads; and that the Prophet, when expelled from his own birth-place, found an asylum in their town, situated in, or on the very limit of Negd, and that the Tay and other tribes living in the two mountains, were among the first nomads to espouse his cause and to pledge him their allegiance. The nature of the land which the Iemenian Arabs inhabit, intersected as it is, by mighty mountain-ranges and well-watered valleys, appears to have destined them for an agricultural, more than a pastoral, people; and the villages spread over their country and the social

life under the government of a common ruler, which always, and still in our days, more or less prevails in most of their provinces, seem to prove this assertion; but the 'Adnânian tribes who rove over the vast plains of Negd and Northern Arabia with their numberless herds of camels, were principally a nomadic and pastoral people. The soil of Negd suits various modes of life, and though properly a pasture-land, it is spotted over with oases, that admit of cultivation and fixed abodes; it was therefore here, in the centre of the peninsula, that the two elements of Arab life, the agricultural and the pastoral, most naturally blended together and modified each other. The original possessor of the land, the nomad, learned here, in society with the agricultural strangers, who had forced their way into his desert, to overcome the aversion nature has implanted in him to a settled life, and the agriculturist's generally narrow and servile mind was raised and imbued with a portion of that free and chivalrous spirit which always characterizes the true son of the desert. Of all the provinces of Negd, there is none which, through this fusion of 'Adnânian and Kahtânian people, has produced so mighty and renowned tribes, or given birth to so many influential men, or supplied such numbers of emigrants to the neighbouring countries, as that of the two mountains; and whatever the Arabs of our age and of every tract still remember and extol as examples of their nomadic ancestors' noble deeds and generous features in liberality, poetry, and heroism, refers more or less to tribes who originated, or at least passed the earlier age of their history here. Whilst tribes that emigrated from other parts of Negd or from Iemen, but who, in their migrations, followed another way than that leading over the two mountains, as did, for instance, the Kahtânian Kudâa, were soon lost sight of in their farther progress, and seldom obtained any great influence upon the political affairs of the Arabs, we find that the Tay, Temîm, and Hilâl, who all came from this province, for a long time after having left their homes, still possessed power and importance in the countries where they had taken up their abodes, and wherever in our days remains of them are met with, they are respected and regarded as a superior race. How well and how far emigrations were carried on from this into distant lands, is shown by the fact that considerable remnants of these three tribes are still found in Tunis and other cities of Northern Africa; and, if information given me by derwîshes from Bukhârâ is to be trusted, Arabic colonies exist at present in the environs of that town and Samarkand, who during centuries have retained their ancestors' language. We may in fact regard Central Arabia as a nursery of emigrants for Mesopotamia, Syria, Egypt, and Northern Africa, whose inhabitants, on account of the nature and situation of the rich countries they possess, are more or less in

danger of the deterioration of the race, or of their being enslaved by foreign oppressors, and therefore seem to require, from time to time, to be revived by fresh reinforcements of the high and free-minded nomadic Arabs; and it is in this point of view that I regard Negd and the province of the two mountains in particular, to be of the greatest importance in the history of these parts of the world. Ritter ('Erdkunde,' xiii. 355-357) calls our attention to the important position which this province occupies in the peninsula, as a transit-land for the commerce and communication of the ancient Minæan, Gerrhæan, and Nabatean people, as well as for travellers and pilgrims of our days, whom he, upon the authority of Burckhardt, says generally pass through this on their way to and from Damascus, Algawf, Der'iyé, and Almedîná. But the information given me in these places, does not tend to verify these statements in reference to our age. The only karawân of any consequence which passes through this land, is the Mesopotamian and Persian pilgrim-karawân which starts from Mesh-hed 'Aly, or formerly from Alkoofá. They rest in Hâil, as they formerly did in Feid, one or two days, and take the direct way, either to Almedîná or to Mekká, both of which are easy and well supplied with water. Those coming from Albasrá and Der'iyé, pass through Alkasîm without approaching the two mountains, if not induced by some special reasons to make that détour. The pilgrims from Algawf prefer passing over Teimâ to Higr, where they join the Syrian karawân and continue their way to Almedîná. The country through which they pass to Teimâ, contains cisterns, which supply them with water; and though this way be anything but easy, it is chosen in preference to that leading direct from Algawf to Gubbé, which, on account of the deep Nufood sand and the absolute want of water, is perhaps the most difficult and the most fatiguing route in these parts of Arabia. From Teimâ direct to Kheibar and Almedîná, the route is easy and pretty well supplied with water, leading through a tract where Fukarâ and Bishr Bedawies are almost always met with. Between Syria and the eastern parts of Negd there is in our time no direct communication that I know of; but a route, leading from Der'iyé through Alkasîm, Gebel Shammar, and Algawf, would form a circuit, no one would make, if not forced by very urgent reasons. The Ruwalá nomads, when occasionally coming down from Haurân to search for pasture in Negd, pass sometimes through Algawf and sometimes direct through the Dahnâ desert, E. of Sukâká, towards Alkasîm. The way from Der'iyé to Egypt leads usually over Alkasîm to Gebel Shammar, whence it turns to Akhdar or Tebook on the Syrian pilgrim-way. It is, however, difficult to speak of routes in Arabia, and to determine their direction: excepting the great pilgrim-routes

there are no certain roads followed in the desert; no soil is impassable for the camel; and the daring Bedawy, who knows his land and its wells, and is inured to the hardships of hunger and thirst, chooses his way wherever he likes. I, however, cannot forbear regarding the position of this province as one of the most advantageous in these parts of the peninsula. Situated in the middle of Northern and Central Arabia, on the very limits of them both, at nearly an equal distance from Damascus, Baghdâd, and Mekká, midway between the Red Sea and the Persian Gulf, it is the most fit place from which to exercise power and command over the neighbouring countries. The soil is cultivable and fertile, wanting nothing but water to furnish the richest produce, whilst the salubrious climate, the granite mountains, perhaps the only ones in the interior of the desert, the vast plains in conjunction with the half-nomadic, half-agricultural mode of life, to which the nature of the land seems to have destined the inhabitants, all conspire to generate a healthy, vigorous, and free-minded race of men. If the nomads of Negd and the Syrian deserts, with the inhabitants of the few towns and villages, which are spread over these lands, were ever to be joined under the government of one chief, I do not doubt but this province would be the most appropriate residence for such a head.

In consequence of the close and intimate relations, before adverted to, which connect the two classes of the Shammar, we find the villagers, to a certain degree, still clinging to the customs and manners of nomadic life, while the Bedawies, on the other hand, apply themselves to avocations, which are generally regarded as not becoming. A great many of the former wander during the spring with their horses and their herds of camels and sheep to the desert, where they live, for a longer or shorter time, under tents as nomads, and most of the Bedawy families possess palm-plantations and corn-fields in the mountains of Agâ and Selmà, which they cultivate on their own account. Such places, which of course always contain water in springs or wells, are, for instance, Samîrâ, Alhufeir, Alhufné, and others, and I am of opinion that the villages which now exist in this province have all their first origin in such water-places. We have in our days a striking instance of such a rising desert village in 'Ukdé, a small and miserable hamlet, about 4 hours from Hâil in the Agâ chain, where there are a few springs, around which some Bedawy families possess palm-plantations. Towards the end of the summer when the dates ripen, they arrive here in order to gather the fruit. Occasionally they plant some new trees, or water and foster the young shoots that have sprung up of themselves. Twice or thrice they revisit the place during the rest of the year, in order to look to the trees, and if there has been abundance of rain, to lead the mountain rills near them, and to increase the quantity of

water which has become too scanty for the extended plantations. By degrees they venture to sow some wheat and oats, trusting in heaven for rain. If they succeed one year, they enlarge their fields the next. These require greater attention—two or three old persons determine to remain for a longer space of time, in order to attend to the proper irrigation and to take care of the fields and the palms. They build themselves a small hut of twigs and leaves of palms, and next year their example is followed by others; so that in some few, perhaps ten years, a score or two of palm-huts gradually arise. But then there comes a rainless year with failing crops and famine, and the new-settled people are taught that they cannot always rely upon heaven alone, but that man is also referred to his own resources and labours for his subsistence. They now commence to dig wells. The palm-huts do not protect them against the rain and the cold of the winter, and they consequently substitute for them huts of clay. They devise new means of subsistence and gain—gather wood in the mountains, and grass and useful herbs in the valleys, which they dispose of in the market of some larger neighbouring town. In the meanwhile, their Bedawy brethren rove about in the deserts with their herds, and return, as before, at the time of the harvest to the new settlement. The thriving condition, the comparatively quiet life of the settled relations, induces every year one or more of the nomads to remain behind their tribe when they leave for the desert, and to take up their abodes here; others are obliged to do so by other circumstances New huts are built, new wells are dug, the plantations extend still more with the increased population, and thus there arises, by degrees, a village in a valley, which was formerly only temporarily, and after long intervals, visited by roving Bedawies. Such places become then so many refuges for poor and reduced nomads, who, having lost their herds and cattle in some manner or other, are unable to continue their pastoral life, or who, "with blood upon their head," have been obliged to leave their tribe and home, in order to escape the revenge of the murdered man's relations. Thus the population increases and mixes, and new and various wants arise. As the nomad, in general, has a natural aversion for every kind of handiwork, and though settled in fixed abodes, retains his character till the last, artisans gather from other neighbouring towns in search of the work, which failed them in their own homes. They generally find employment in the new rising villages and settle there. It is with the same view of gain that trading people and pedlars visit these places. They return yearly, once or twice; take dates, wool, butter, and other products of the desert in exchange for their commodities, become by degrees familiar with the customs and manners of the inhabitants, choose a wife among the fresh daughters of the desert, and finish

with settling here for life. That these latter immigrations of artisans and tradespeople are especially made to such villages where, so to say, the richer inhabitants reside, is natural; and it is in consequence of such immigrations that Hâil, in particular, which must in every respect be considered as the capital of the province, consists of the most varied and heterogeneous population. Hâil is probably one of the latest founded villages in the land, owing its origin principally to its being the birthplace of the present and the preceding sheïkh family. There is no mention made in the works of Arab geographers of Hâil as a village, but only as a *place* in the Agâ chain. It is situated in a flat low valley, extending nearly E. and W. along the foot of the above-mentioned mount of Samrâ Hâil, at the eastern end of which, there runs a spring of tepid and brackish water, the only one in the whole village. Around this spring the first clay-huts seem to have been built, and there are still extensive ruins of houses of a later date to be seen; but at present this spring has been deserted, and the inhabitants have by degrees moved higher up towards the W.; where on the vast plain of Albatîn, the subterranean water-rills offer a greater number of wells. The first and principal thing a new settler must think of, is obviously water for irrigation, and as soon as this is found and the well is dug, there rises around it an orchard of palms and other fruit-trees, in the centre of which the houses are gradually built with the same materials as those commonly used in the desert, viz. sun-baked bricks of smaller size, and not so bulky as those moulded by the Syrians; and trunks of palms or the pine-tree, Athal, for the doors and the ridges of the roof, which is always flat. Most of the houses consist of two stories, with large and commodious, though but very few, rooms, in which the light is admitted only through the door and small apertures made in the walls immediately below the ceiling. Every house, without exception, has a coffee-room, which stands separated from the other buildings, facing the orchard or in the centre of it, and it is here that guests are received and the men assemble for conversation and business. The whole piece of ground belonging to a house, is enclosed by a wall; but the extensive area which the villages generally occupy, makes such an enclosure impossible for most of them. The residence of Ibnu Alrashîd is distinguished from other houses by nothing but its largeness and extent, which the accommodation of his own ample household, and the numerous guests which the chief entertains throughout the year, make necessary. Every stranger arriving here without relations or friends to put up with, dismounts at the palace of the chief, where he may be sure of being received and entertained as long a space of time as he chooses to stop. The tra-

vellers make their camels kneel down in an open, large court-yard, called Manâkh, which is surrounded by small buildings and rooms, or rather pens, not unlike those in a Persian karawanserai. In these rooms, the large coffee-hall, and in the mosque, the strangers are lodged for the night, whilst the meaner guests make shift with the ground of the open court-yard to sleep upon, in company with the camels. Around the walls of the buildings encircling the court-yard, sofas or benches, made of clay, are placed, upon which the chief holds his court of justice twice every day, in the morning and in the afternoon. The village contains a great many open places and markets, where meat, vegetables, and other victuals are sold, contrary to the rule in Algawf and the villages of the northern desert, where to expose food publicly for sale is regarded as ignominious. The streets are broad and commodious, though never paved, and in the principal one of them, called Lubdé, there is a score of open shops kept chiefly by wandering tradesmen from 'Irâk, Almedîná, or Alkasîm. Hâil is now considered to contain about 210 houses and as many families; but if it continue to extend in the same manner as it does at present, it will soon join another small village with a population of 10 families, called Alwuseitá, which stands at a distance of about three quarters of an hour from Hâil, on the plain nearer to the foot of Agâ.

Besides the villages already mentioned in this province, there are the following:—Kafâr, situated at a distance of about 3 hours' fast walking from Hâil, in the direction of W.S.W. by S., not far from the Agâ chain. This is unquestionably the largest village in the province, and perhaps the most thriving one, inhabited exclusively by Benoo Temîm, in number about 500 families. It is therefore so much the more astonishing, that not even the name of this village is to be found in any of the authors I have had the opportunity of consulting. At the eastern end of the village there are many remnants and ruins of decayed houses and walls of clay, which seem to prove that also here the inhabitants in course of time have moved westwards, approaching nearer to the mountain. The Benoo Temîm have retained some peculiarities in their language and manners, as well as a particular cast in their features, which easily distinguishes them from the Shammar. While travelling among the Bedawies of the western parts of the peninsula, I was incessantly questioned by them, as well as by the Egyptians and the Syrians, about this tribe, their manners and language, their stature, and other particulars; and the first and most general question put to me was, if their size be not taller and their beards not longer and denser than those of other Arabs. This observation seems to refer to the original signification of the word Temîm, which in the old language, was applied to a man of a strong and

healthy constitution, and to a certain degree, I have found the observation true in regard to this tribe. Though their forefathers chiefly and originally were nomads, the present inhabitants are exclusively an agricultural people, who seldom engage in traffic or partake in war and plundering expeditions with the Shammar; nor is there ever, as I think, any of them found among the Bedawies leading here a nomadic life. But at harvest time numbers of Bedawies, both Shammar and 'Enezé, gather around their village in order to sell or exchange their cattle and products for dates and corn, of which this village generally has larger stores than any other in the province. As the market of Hâil, whose inhabitants, being the aristocracy of Shammar, are naturally more given to vanity and show, easily supplies them with clothing and other necessaries, as well as with the luxuries of coffee, spices, and perfumes, which latter are very much used in Negd in compliance with a command of the Prophet, their village is but seldom visited by travelling tradesmen. The Benoo Temîm are more punctual than the other Wahhâbies in the observance of their religious duties, and it is probably in consequence of this piety, that they as often and in as great numbers as possible, perform the pilgrimage to Mekká; and though they generally provide themselves in that great fair of the Islamitic world, with as much merchandise as they are able to carry home with them, they make the long and often very expensive journey, rather as a meritorious act of religion than, as is generally the case with the Shammar, with the object of profit and gain. A great part of these nomads, formerly so mighty and wide-spread, live, as we already have observed, in Mesopotamia, but the bulk of the tribe is said by the people at present here, to be found, together with their kindred tribe of Benoo Hilâl, in Northern Africa, particularly in Tunis. Besides Kafâr, there are three other villages in the province of the two mountains which are inhabited by the Benoo Temîm, viz. Mustagiddé, Alrawdá, and Feid. Of these, the first mentioned is situated about 2 days from Kafâr in the direction of S.W.; the second is only about half a day to the N. of Mustagiddé; and in each of them the population may be estimated at about 200 families. Alrawdá ought, perhaps, to be identified with a place, mentioned by Iakoot under the name of Rawdát Kurâkir, as pasture-grounds in the two mountains.

Feid is not exclusively peopled by Benoo Temîm, as the three above-mentioned villages are, but about half of the population, the whole of which does not probably exceed 150 families, consists of them. This village is situated about 2 short days S. by E. of Hâil, on the S.E. side of the Selmà chain, at a distance from it of about one day. It is the oldest village in the province, and is mentioned by every geographer, as a town midway between Alkoofá and Mekká. Iakoot tells us that the pilgrim-karawân

from Alkoofá passed through it, and was in the habit of leaving part of their heavier luggage and so much of their provisions for the way, as they conveniently could do without, in care of the inhabitants of Feid, until their return from the holy places, when they paid them with a share of the goods deposited in their trust. He adds that the village was of great importance to the pilgrims in such a lonely place; from which statement it may be inferred that the land at that period was not so well cultivated and peopled as at present. The inhabitants earn their subsistence, the same author continues, by gathering fodder and forage in the course of the year and laying it up in store, until the arrival of the pilgrims, to whom they then sell or exchange it. This is still in our days the case with most of the villages situated on the pilgrim-route, as Maân, Tebook, Muweileh, Nakhil, and others, the origin and existence of which are more or less dependent upon the pilgrims passing through them on their way to and from the holy places. Alzugâgy, the grammarian quoted by Iakoot, says that the name of Feid is derived from Feid, son of Hâm,* who was the first to settle here. We may perhaps suppose the name of Feid to have some reference to the above-mentioned Fâid, one of Selmà's brothers of the old Al'amâlîks, who is stated to have settled somewhere hereabouts, which is the more likely, as Alzugâgy holds it probable that the word is derived from the same root as 'Fâid.' Another author, Alsakoony, whom Iakoot also quotes, tells us that Feid was divided between three tribes. One third belonged to the 'Amroon, another to the family of Aboo Salâmy of Hamadân, and the third part to Benoo Nabhân. These Benoo Nabhân, who are also mentioned by Ritter (Erdkunde, xiii. 372) as a tribe of Tay, living in a place called Almughizé, we know were one of the mightiest families of Tay of the branch of Ghawth. Those named in the second place, were probably descendants of Salâmân of the branch of Azd, among whose ancestors a Hamadân also is mentioned; but as regards the 'Amroon, I am not sure to whom to refer them, although I suppose them to belong also to some Iemenian stem of Kahlân. The distance from this place to Wâdî Alkurà, where it may be inferred, from the manuscript at St. Petersburg, that another Feid existed, is estimated by Alsakoony at 6 days' fast camel's march, which exactly corresponds with the information given me by the people here. The country through which the way leads from Feid to Syria, is described as consisting of mere sand-flats, where the chance of finding water is quite uncertain, and in consequence thereof, as impracticable and almost impossible to be traversed as far as Zebâlé and Al'akabá (of which places the latter may perhaps be identified with Al'akabá

* The manuscript at St. Petersburg has 'Am: but Hammer, quoted by Ritter (Erdkunde, xiii. 333), reads Hâm in Gihan-Numâ.

Alshâmiyé), where the plain and even tract commences again. As we have already seen, the most natural route from this to Syria leads over Teimâ to Tebook and along the pilgrims' way, and it is probably the road that Alsakoony adverts to. In the tract between Gebel Shammar and Tebook, water is scarce and for the greatest part contained in cisterns, upon which of course there is no reliance; but the deep and loose Nufood sand ceases already in Teimâ, and on the other side of that place the ground of the Syrian desert is easy and level. It appears from hence, as well as from the many notices Ritter has collected about Feid, that in former days it was the greatest and most important village in this country. In our days, as the pilgrim-karawân has taken its way to Hâil, and the ruling sheikh has taken up his residence there, Feid has sunk into insignificance Some remains of very old aqueducts are said to exist in Feid, but as I never had the opportunity of visiting the place myself, I have not been able to ascertain their extent. Besides these four villages in Gebel Shammar, there is still a fifth, called Alhawtá, in Negd, Al'ârid, which is inhabited by Benoo Temîm, but except at these five, I am not aware of any other places in Arabia where descendants of that renowned tribe are to be met with.

Between Hâil and Feid, at the same distance from either, is situated, at the very foot of the Selmà mountain, Sab'ân, a small hamlet with running water, where, in the same manner as in 'Ukdé, Bedawy families occasionally settle, in order to cultivate dates and corn. It is named by Iakoot as a known place in the land of Keis. He pronounces it Sabu'ân, and gives it as the only example occurring in the Arabic language of such a form.

Midway between Feid and Sab'ân, there is a small village called Tâbé, mentioned also by Iakoot, as a place in the land of Tay; and one day S. b. E of Feid, is the village of Kahfé, situated on the very boundary of the Shammar land on this side. Though not certain about the population of these two villages, I believe neither of them exceeds 50 families. It is over these places that the way leads from Hâil to Alkasîm. The first night is generally passed in Sab'ân, the second in Feid, and the third in Kahfé. These three stations are all short journeys of about 8 hours. From the latter place is counted a long day's march to Alkuseibá, the first village in Alkasîm on this side; from thence likewise a long day to Al'uioon, and from this half a day to Albureidá, the principal town of Alkasîm, situated at only some hours' distance from 'Eneizé, the second town of that province.

In the neighbourhood of Almustagiddé and Alrawdá there is one of the larger villages of the province, called Alghazâlé, containing a population of about 200 families of Shammar, and sur-

rounded by a wall of sun-baked bricks. On my way from Hâil to Almedîná, I counted 19 hours' fast camel's march to this place in a S.W. direction.

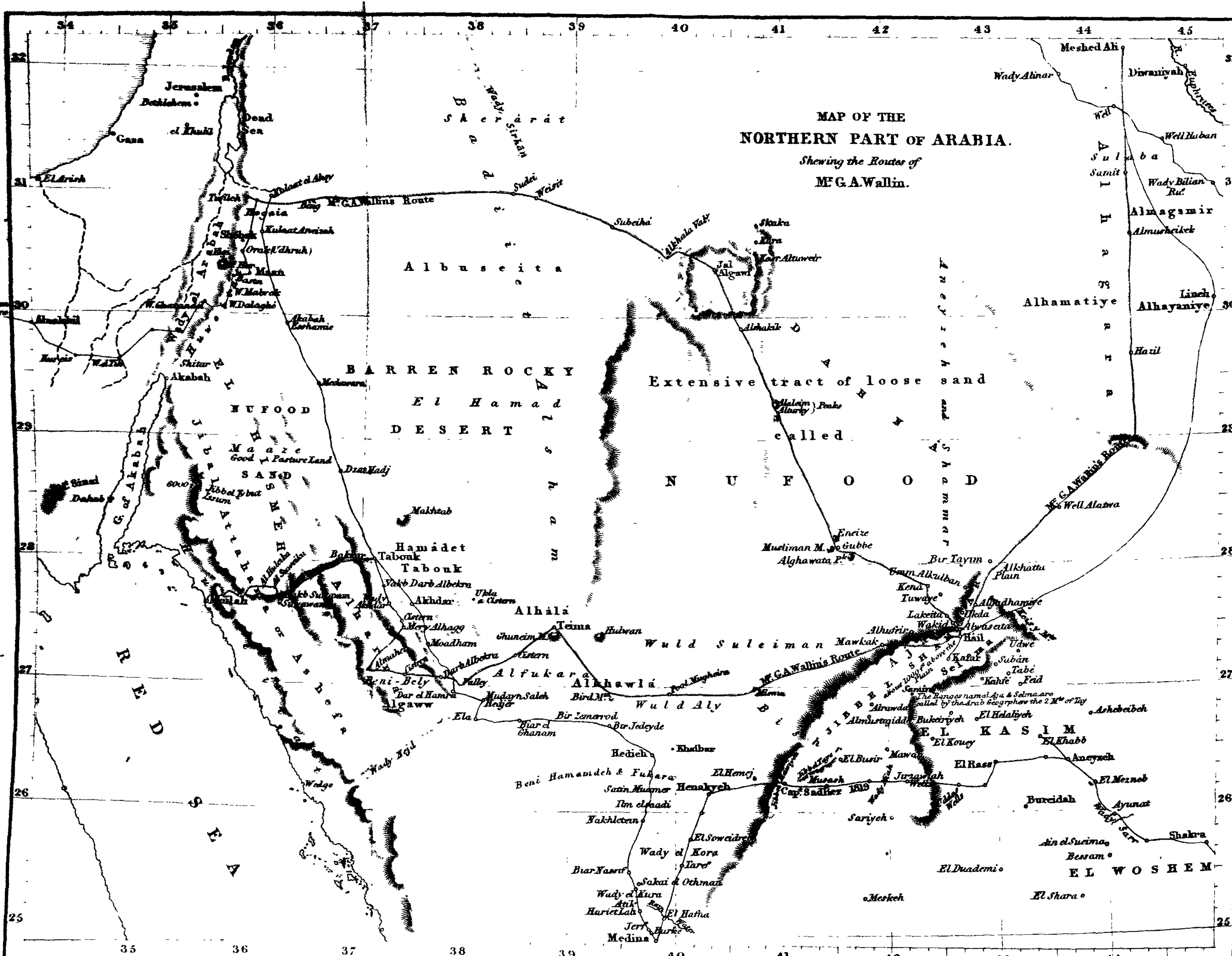
About 3 days S.W. of Alghazâlé, 5 days from Hâil, and 3 from Almedîná, is situated, on the boundary of the province towards the Harb Bedawies, a small village called Kasr Alsuleimy, containing about 10 families. The name Kasr, which generally signifies palace, is, especially by the Arabs of Negd, given to small places on the boundary of a province. Exposed as the inhabitants of such rising villages generally are, to the inroads of hostile Bedawy tribes of the neighbourhood, they surround the place with a wall and surmount their houses with small turrets, with a view of easier defence against their enemies; and it is probably from this mode of building that they have received their name. The word kal'á, which in later times has become more current amongst the Arabs of Egypt and Syria, seems to imply the same signification. Kasr, and its diminutive form Kuseir, is more frequent in the old geography and in the desert, as an epithet added to the names of small places There is another similar place in this province, called Kasr 'Asharawâ, situated about 8 hours W. of Kafâr, and containing about the same population as Kasr Alsuleimy.

Twelve hours' slow camel's march from Hâil in an E. b. S. direction, and about 7 hours from Sab'ân, is found a small hamlet, called 'Udwé, where, in the same manner as in 'Ukdé, Shammar Bedawies cultivate corn. A similar place is Samîrâ, at the S.W. end of the Selmà chain, which, according to Arab geographers, was the first settlement of Tay, in this land. Other similar hamlets are Aludhîm, Almakhool, and Alhufné, the situation of which places I, however, have not been able to ascertain correctly.

On the N.W. side of the Agâ chain lies, besides the already mentioned villages, Mawkak, one of the largest towns in this province, containing a population of upwards of 220 families, which by no means can be identified with Kafâr, as Ritter does in his Erdkunde (xiii. 356). It is situated at the foot of a prominent peak, jutting out from the main chain of Agâ, nearly in the commencement of a valley, which from N.W. to S.E. crosses the chain on its whole width for about 10 hours' way. 'Ubeid Allah Alsakoony, quoted by Iakoot, says that Mawkak, the derivation of which name he acknowledges that he does not know, is a village with palm plantations and corn-fields at the foot of a peak shooting out from Agâ. Others believe Mawkak to be a water place belonging to the tribe of 'Amroo, son of Alghawth, and afterwards in the possession of the tribe of Shamgy(?). This 'Amroo, son of Alghawth, may probably be regarded as the ancestor of Al'amroon, men-

tioned above as possessors of a part of Feid; but as for the tribe of Alshamgy, I have nowhere else found that name. N.W. of Mawkak, at a short distance, lies the above-mentioned Alhufeir, a hamlet in the same style as Sab'ân; and in the neighbourhood of Allakeilá, in the interior of the chain, is another similar hamlet, called Tuwayé. About 6 hours E. of Kenâ there is another small village called Umm Kulbân, quite a new settlement, containing about 10 families. It has probably its name from the abundance of wells which it contains, and its population may be expected very soon to increase. Six hours N.N.E. of Hâil is situated, near to the S.E. foot of the Agâ chain, Algadhâmiyé, the last village on this side of the province, containing a population of about 20 families. It is between this place, or rather the N.E. end of Agâ, distant from hence only about 5 hours, and Kasr Alsuleimy, that the Shammar land has its farthest length from S.W. to N.E., amounting to about 6 days' fast camel's march. The breadth of the land, from Gubbé to Kahfé, amounts to nearly the same number of days; and though I feel convinced that this province is one of the best peopled in all Negd, the average population of the settled Shammar and Temîm upon this considerable area, cannot be estimated higher than at about 2000 families. To what number the nomadic population of the tribe amounts, I am at a loss to calculate; but if we except those living in Mesopotamia, the rest of the Shammar Bedawies nomadizing in this land and the neighbouring deserts, will not, I believe, exceed 1000 families.

From Hâil I went with the Mesopotamian and Persian pilgrim-karawân to Almedîná and Mekká, where I performed the pilgrimage; but I regret to say that I have no geographical details of that journey. My hazardous situation with the pilgrims, the hastened and fatiguing march, the incommunicative disposition which, for the first time, I witnessed among Arabs, and which may be probably attributed to the numerous cares and sorrows of the individual pilgrims, as well as to the hated presence of the Persians, who are extremely awkward and tiresome on desert journeys, in conjunction with many other circumstances, prevented me from asking many questions or taking any notes. The pilgrims very often take the direct way from this to Mekká, particularly if the time be short, and perform the journey in about 12 days; but this year they made the circuit over Almedîná. The whole of our way from Hâil to the Prophet's tomb, was made in 85 hours' very fast camel's march, nearly in the direction of S.W. or W.S.W. About 39 hours from Hâil we traversed a vast plain where the chain of Agâ, which we during the whole of our way till then, had seen to our right at some hours' distance, was interrupted, thus leaving an open space for the plain to extend towards



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J. & C. Walker Sc.

N.W. It continues, I was told, without interruptions of mountains or undulations, as far as to the coast of the Red Sea, and it may perhaps be regarded as part of the old Wâdî Alkurà, running down from Higr, on one side towards the interior of the desert, and on the other through the present Wâdî Negd, towards the seaport town of Wegh. In the centre of the plain to our left, we had a small village called Alhuleifé, containing about 8 houses with some poor palm plantations, belonging to 'Enezé Bedawies. On the other side of the plain the mountain ridges recommenced as a continuation of the Agâ, but the prevalent element of the rock was here sand and limestone, till we penetrated the land of Harb and the interior parts of Alhigâz, where granite chains again invariably formed the walls of the valleys through which our way led.

Itinerary of Dr. Wallin's Journey from Cairo in 1845.

April
12. Cairo.
14. 'Agrúd.
15. Mab'uk; Feráshat al shíh; Alrahá; Humeirá.
16. Bal'ím-al Maghárbé; Hashm al Farwá; Wadi-al-buruk; Semíleta-al-deráwish; Jebel Hasan.
17. Al-nakhl.
18. Wadi-al-burúk.
19. Kureis.
20. Wadi-al tíh.
23. Open Plain.
24. Wadi Hamádé.
25. Wadi-al-Arabá.
26. Wadi Gharandel.
27. Nakb 'Ajáné.
28. Wadi Dalághé; 'Umrán Arabs.
30. Wadi Mabrak; 'Ain Bastá; Ma'án.

May
5. Udhruh.
6. Wadi-al-eimá; Khán-al-zebíb; Shawbak; Wadi Nagil; Ibnu Jází Arabs.
7. Shajaret-al-tayár; Ibnu Thiyáb Arabs.
8. Al-Mas'udiyín Arabs; Al-Majhárí Arabs; Altafílé.

May
18. Syrian Desert; Alashá; Bá'ij.
19. Desert; Limestone ranges.
20. Desert of Bádyét Alshám.
21. Wells of Sudeí.
22. Wells of Weisit; Deep sands; Wadi Sirhán.
23. Wells of Subeihá.
24. Al-Udheirí Hills; Wadi Alkhalá.
25. Jál al-jauf; Wadi Ab-Batín; Aljauf.

August
30. Nufúd sands.
31. Wells of Al-shakík.

September
1. Mts. of Al-tuwál.
2. Alkhal Road.
3. Two insulated peaks, Al'-aleim and Al-turkí.

4 & 5. Mt. Muslimán; Jubbé.
18. Peak of Al-jhawtá; Nufúd sands.
19. Kená; Um Kulbán.
20. Lakeitá; Wakíd; Agá and Selmá Mts., and arrived at *Hail*: afterwards to Medina and Mecca.

—Ed.

V.—*Journey to Medina, with Route from Yambu.* By Lieutenant R. Burton.

To the Secretary to the Royal Geographical Society.

Read June 12, 1854.

[Sir,—I well recollect one of the last sentences addressed to me by the Committee of your learned Society on my departure—"We should wish to hear from you as soon as possible." And I am also aware that not having received a single notice from me since my departure, you have had ample reason to hold me "nidering." The reasons for my "fainéance" appear to me—as usual in case of self-excuse—sufficient: I have been a sufferer from climate, and too dull to put pen to paper, leading the most unsettled life, when writing becomes wearisome to the writer and consequently to the reader: and, finally, I have been busily employed in proposing an Expedition to *Eastern Africa*. Assisted by the enlightened nobleman now at the head of the Bombay Government and by other influential persons, my exertions have every prospect of success: I need scarcely say, that if appointed to direct the course of discovery, I shall never forget that to the liberal patronage of the Royal Geographical Society I owe the opportunity lately afforded to me of proving, "par voie de faits," my fitness for so responsible a charge.

You may remember, Sir, that I started with the intention of crossing the breadth of Arabia from El Medina to Muscat, or of travelling south-eastwards in a diagonal line from Mecca to Maculla, on the Indian Ocean. Arrived at the Prophet's burial-place, I found the Badawin fighting in all directions: even Khaybar * was inaccessible, and the robber chiefs emphatically expressed their determination to "cut the throat of every man" found in their passes. Disguised as a mendicant I might have penetrated eastwards, but no guide would have accompanied me before the end of the pilgrimage-season—October or early November—and the limits of my leave did peremptorily forbid this delay. At Mecca also I was doomed to be disappointed. Some dispute between the Arab Sherif and the Turkish Pacha, and the excitement of a Holy War in prospect, had afforded the amiable Badawin of El Hejaz a reasonable excuse for recurring to their pet pastime—that of every man shooting his Moslem neighbour. Thus the roads swarmed with obstacles, all superable, but superable only to those who have at command unlimited time. I need not enlarge upon my disappointment at this failure in sight of success.

The secondary objects of my tour, I may remind you, were to find out if a market could be established for horses; to obtain information concerning the Great Eastern Desert; to inquire into the hydrography of El Hyar, its water-parting, the existence of perennial streams and the disputed slope of the country; and finally to try by the test of inspection the theory proposed by a distinguished member of your Society, Lieut.-Col. Sykes; namely, that in the population of the vast Peninsula there exist physiological differences sufficient to warrant our questioning the common origin of the Arabian family.

I satisfied myself that the Hejaz cannot supply India with horses. These animals, though high-bred in the "Holy Land," are "rats," as slender stunted bloods are generally called, of fabulous price, and to be bought only when necessity compels the owners to part with them.†

Of the Great Eastern Desert (the white blot in our maps marked Ruba el

* The position of this place is variably laid down in our maps. My Medina friends fixed it N.E. of, and distant 3 days' journey (with laden camels, say about 70 miles) from, El Medina.

† *See* preceding paper by Dr. Wallin.—Ed.

Khali, or the uninhabited region), I have heard from credible relators, that its horrid depths swarm with a large and half-starved population, amongst whom the hardy and daring explorer will find it possible to travel, and that it is a system of rocky hills, semi-fertile ravines, and valleys, sand-deserts, and plains of hard clay, covered with their vegetation by a scanty winter rain. At El Medina I heard a tradition that in days of yore a high road ran from the city, passing through this wild region to Hadramaut. It had, however, been deserted for ages, and my informants considered me demented when I talked of travelling by it.

I am satisfied that, despite all geography, between Ptolemy and Jomard, Arabia, so rich in fiumaras * and mountain rills, contains nothing that can properly be called a river, and I have reasons to believe that, contrary to Ritter and others, the general declivity of Arabia is from N. to S.—from Baghdad to Mecca.

My ethnographic researches, which I propose to detail at some future time, induce me to believe in three distinct races, viz. :—

1. The Aborigines of the country, now driven, like the Bheels and other autochthonic Indians, into the eastern wilds bordering upon the ocean. These are the people derived by a multitude of authors originally from India, a theory which, destitute of historic proof, relies upon strong and salient points of physical similarity between the aborigines of the two peninsulas.

2. The advenæ, a Syrian or Mesopotamian race (typified by Shem and Joktan †), that seized the finest tracts of country and now represents the great Arabian people, and

3. An impure Egypto-Arab clan, personified by Ishmael, his son Nebajoth and Edom (Esau) the son of Isaac, that populated and still holds the Sinaitic Peninsula and the lands immediately E. of it.

The outline of my journey is this. Early in April 1853 I left Southampton disguised in Persian dress, and landed at Alexandria regretting that I had not at once assumed an Afghan costume. A friend, John Larking, gave me a room in his garden, and there I lived about 5 weeks, collecting information about El Hejaz, and refreshing my remembrance of things oriental. When duly prepared, a small Fakih or hedge-priest started by the Cairo steamer. My stay at the capital of Egypt lasted 6 weeks, during which time I became an Indian doctor, and supplied myself with the preposterous outfit with which Eastern travellers to El Hejaz are wont, about as sensibly as our East India cadets, to encumber themselves. In July, after some difficulty about passports at Cairo, I went to Suez, fell in with a Mecca boy and a party of respectable Medinites, who, believing me to be a Sulaymani or Afghan pilgrim, offered to take me to their native city. I should have been detained at Suez had it not been for the stout aid of Her Britannic Majesty's Vice-Consul,

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* The English language contains, I believe, no single word to express a "hill-water course, which rolls a torrent after rain, and is either partially or wholly dry in the drought season;" in fact, what the Arabs denote by "misyal, masyal, masil, or masilah" (the place of flowing), and the Indians by "nullah." No reader of Niebuhr translated can fail to remark the ambiguity and inefficacy of the term "river" in such passages as these:—"We crossed several times over the Wadi Suradsji, a considerably large and rapid *river*, even at that time, although no rain had fallen for a long while." And,—"We passed without wetting our feet over the *river* Suradsji, which we had lately seen so large among the hills." Though unwilling to naturalise a word unnecessarily, I propose to adopt "fiumara," from a land in which the feature abounds.

† *Typified*, because the names of the descendants of Joktan (Gen. x. 26-29) are those of cities and regions, not of individuals. For instance, Hazar-maveth, the "home of death," would never be applied by Orientals to a person; whereas for centuries it has denoted, and still denotes, a place.

Mr. West, who persuaded the Bey to overlook the informality of my passport and to allow me to embark on board a pilgrim ship. On the 12th day we landed at Yambu, and immediately started for El Medina, where I went to the house of a friend. This road is not unknown to Europe, but the Swiss traveller Burckhardt was so ill when he observed it, that his pages as well as his map cannot every where be trusted. At the Prophet's burial-place I found means to plot the Mosque—a desideratum—to sketch the town, of which our popular prints are absurdly incorrect, and to visit all the consecrated environs, except Khaybar, where the Badawin were "out." On the 31st of August I started with the Damascus Cafila by the "Darb el Sharki,"* or Eastern Road, through the great Nejd Desert, deeply grateful to the Schinderhannes who shut up the well-known Coast-Road described by my predecessor. Our 12 days' journey was through an unknown country, and though I could use nothing but watch and pocket-compass—the sight of my sextant at Suez having aroused such suspicions in the Arab mind, that I was compelled to leave it behind—my field-book will, it is hoped, supply a modicum of interesting matter. Arrived at Mecca on the 10th September, I went to the house of the boy Mohammed who had accompanied me from Suez, was most hospitably received by the old widow his mother, and had an opportunity of seeing all the ceremonies of the Haj; I entered the Kaabah and made a plan whilst apparently praying, visited the environs of the city, and became a Haji Baba, which revered title may be really useful to me when wandering among Moslem races. Early in October I returned to Egypt with the intention of starting once more to Arabia, when Fate again interposed an obstacle in the shape of dysentery, and time creeping on made my return to India imperative.]

To begin my narrative—We embarked on board the 'Golden Wire,' a pilgrim ship belonging to a Suez merchant. Her rig and build, like that of all the Red Sea craft, have a general resemblance to the Indian pattimar,† which I believe to be the most ancient shape in the Eastern world, after catamaran and the "toni," or hollowed mango trunk. The Western Arabs still know only two kinds of vessels, the "Sambuk" ‡ and the "Baghlah,"§ differing in tonnage, not in shape; whereas the Eastern Arabs have almost as many varieties of craft as we have. This arises from the circumstance that timber for ship-building is not to be found on the shores of the Red Sea, for which reason the people never were and are not a nation of mariners; whereas the inhabitants of Oman, Hadramaut, and Yemen easily supplied their want of wood by trading for teak with Malabar. This traffic, which began, doubtless, in early ages, gave the Eastern Arabs a spirit of adventure, familiarized them with navigation, afforded them an opportunity of colonising—their descendants the Moplahs are a standing proof of extensive immi-

* There are four high roads between Mecca and Medina:—1, The Sharki or Desert Road; 2, the Sultani or Royal Way, along the coast and between them; 3, the Wady el Fara Road; and, 4, the Tarik el Ghair.

† A model of the pattimar was shown at the Great Exhibition; any description of it is therefore unnecessary.

‡ This name is the more remarkable, as Athenæus describes the musical instrument called "sambuca" as "resembling a ship with a ladder placed over it." —G. W.

§ A mule.—G. W.

gration—and opened India, that mine of wealth, to their energy and industry.* Europe still preserves traces of their naval architecture in the felucca, the barge, and the ancient "dromound" —words obviously derived from the Arabs.

The owner of the 'Golden Wire' had agreed to take 60 passengers—a cargo quite sufficient, with their mountainous heap of baggage, for an open-decked vessel of about 75 tons. Favoured by fortune, he filled it with 130 human beings, mostly Badawin, from El Maghrab, perhaps the greatest ruffians in Islam. I will not describe the daily fights we witnessed and had sometimes to join in; two men were stabbed in the port of Suez, and before we were half way between Egypt and Yambu, the "second class" generally made an energetic attempt to share with the "first" the lofty poop of the 'Golden Wire:' † but we received them with our quarter-staves, and after an elegant little defence of our vantage ground we forced them to beat a retreat, their whity-brown burnooses bearing large stains of a certain "curious juice." Presently, in token of repentance, they kissed our heads, shoulders, and knees; they promised not to offend again, and during the rest of the voyage contented themselves with cursing us.

We crept slowly down the coast of the Red Sea, a locality whose principal point of interest is perhaps its name. There are seven different derivations *sub judice*, by which circumstance I am encouraged to propose an eighth. The Greek Ερυθρη θαλασσα applied to that portion of the Indian Ocean which washes the southern and the south-eastern, as well as the western margin of Arabia, was derived from Erythras, a son of Perseus and Andromeda, drowned, we are told by Lempriere, in these dangerous waters. But from whom did the Greeks derive their early knowledge of "Araby the Blest?" ‡ Most probably from the Phenicians, aborigines of Yemen, who would call the sea, as is still customary in the East, § after the race inhabiting its shores, the

* The Periplus specifies three lines from Arabia to India:—1. Down the Red Sea to Aden, up the coast of Eastern Arabia, and along the shores of Persia and Sindh to Cambay (This was probably the eastern voyage in Solomon's time.) 2. Down the Red Sea to Cape Guardafui in Africa, and thence direct with the monsoon to India. 3. From Ras Fartak to India. The difficulty and danger of the two first routes are but little diminished to Arab sailing-vessels even in our day.

† On the poop we paid from seven to nine Spanish dollars, according to our means; the second class from four to five; and the women in the cabin six or seven.

‡ Even the classical "Arabia Felix" is palpably derived from the vernacular name "Yemen," whose root implies prosperity or felicity.

§ The Arabic language is as poor in general names for grand geographical features as it is rich in special and distinctive terms. Modern Arab pilots have a particular name for each part of the Red Sea: here it is the "Sea of Suez;" here the "Sea of Tur;" there the "Sea of Yambu;" and so on. I have had occasion to make the same remark about the great range of mountains between El Medina and the coast.

Himyar or Red Arabs. This "Erythras" would be a Hellenization of the barbaric name, and the myth might be borrowed from a tradition of some ancient Himyarite hero perishing in the sea that has destroyed so many of his race.

On the third day after departure we made Tur after a severe tossing by the wild waves in the "Birket Faraun,"—Pharaoh's Gulf.* Here it is, not at Suez, that modern Arabic tradition places the passage of the Israelites, these supernaturalists preferring the spot, probably because of all the localities hitherto proposed this is the most impossible—but the traveller must beware how he trusts to Arab tradition or to Frank translation. Jebel Atákah, the Mountain of Deliverance (*quippe* of the Israelites from Pharaoh), is a hill near Suez, which gives glad tidings to the timid pilgrim that he has been delivered from the perils of El Hejaz; and "El Tih," which M. de Laborde translates "Vallée de l'Egarement," means a "desert where you *may* lose yourself,"—a shade of difference from a "desert where the children of Israel did lose themselves." †

This mean village of Tur, one of Pliny's "portus multi," boasts a noble origin. Your learned member, Sir G. Wilkinson, is, I humbly opine, hasty in deriving its name "from the mother city Tyre, Toor, or Tzur." If there be any truth in history and Herodotus, the Phenicians anciently inhabited the coasts of the Erythrean Sea,‡ whence, migrating northwards, they settled on the Syrian shore. If this be true, Tur is more ancient than Tyre, and its name would be derived from the Tur § (in Arabic, a high mountain), ‖ which forms its sublime back ground. The Greeks called the place φοινικων,¶ a literal translation, *more Hellenico*, of the

* I heard nothing of the legend recorded by Niebuhr: "The Arabs imagine that Pharaoh is doing penance at the bottom of a hot spring called 'Hamman Faraun,' and vomits up the sulphureous vapour with which the water is impregnated." But the country is a hot-bed of traditionary faith; and what was current in Niebuhr's day may have been forgotten now.

† M. Linant de Bellefond, whose name is a guarantee of accuracy, informed me, with permission to publish, that of all the stations in the Mosaic Exodus, so accurately and circumstantially laid down in our maps, he considered only three to have been successfully pointed out:—1. Rameses, in Eastern Egypt. M. Linant, some years ago, heard the name applied by certain Badawin to some ruins. 2. Succoth, Sokot, translated by the Arabs into Umm Khiyam—the "mother of tents." 3. Etham, still the proper name of a Badawi clan.

‡ That was the Persian Gulf.—G. W.

§ This town is, perhaps, from Tur, "the mountain;" for Tyre is a different name, and properly Tzur, whence Sûr.—G. W.

‖ So the Syrian Arabs still call Mount Tabor, "Gebel Tur." There is another Tur near Mecca.

¶ In Ptolemy's catalogue of stations on the eastern side of the Erythrean Sea, the eighth—meant by Gosselin and D'Anville to correspond with the modern Muwaylah—is called "Phœnicon." This word I have shown to be a general name; and almost every place on the coast where ships anchor has its "nakhil," or date-ground.

Arabic Nakhil (palmetum);* and to this day the most remarkable feature of the country, after "grey-topped Sinai," are the palm-groves, which, laden with delicious fruit, fringe the low and sandy shore.

On the fifth day we slanted across the gulf of Akabah; but, anxious as I was to learn something about the coral reef said to be slowly transforming it into another inland sea, I could get no information from my companions. In course of confabulation, one of them mentioned a hill, N.E. of Muwaylah (the Leuke Kome of Gosselin), called Jebel Rúmán—the Mountain of the Romans—and answered me that it is covered with remains of Kafir or infidel architecture.† Your Society might, perhaps, induce some traveller to explore this part of the country, where, with letters from the Pacha of Egypt, he would be safe enough: ill health prevented my seizing the opportunity when at Cairo. Since the Swiss Burckhardt's glorious restoration of Petra to the world, there has been no discovery in this region more interesting than would be the remains of Roman civilization in the wilds of Arabia.

Near Muwaylah gold is still found. A Haji at Cairo extracted with quicksilver no less than 6 drms. of dust out of 52 drms. of sand, collected in a fiumara. According to the testimony of the ancients, the precious metal was at one time plentiful in Arabia, as we might expect it to be in a land so rich in primitive and quartzose formations; and to quote the opinion of a friend—Dr. Carter of Bombay—the present absence of gold is no argument against its presence in past times.‡ The crop may have been gathered, the fields stripped, and ancient Arabia may have been a California, even as California will become an Arabia to some future generation.

Marsa-Damghats, Wijh Harbour, Hasan el Marabit, Sharm-Antar, Jebel-Hasan, and other places of interest on the coast, I pass by without description; for though the winds and currents of this fickle sea may have so altered the submarine parts as to render a fresh edition of Moresby's survey necessary, that noble work still gives ample information concerning the objects on shore. We

* Very probable.—G. W.

† I afterwards heard of it from M. Linant, at Cairo. Amongst other interesting subjects, that gentleman assured me that the Dead Sea was separated from the Gulf of Akabah by a continuous transverse ridge of rock. The testimony of such an eyewitness authorises us to reject the theory which makes the Asphaltus lake the ancient head of the Akabah Gulf, unless we feel disposed to throw up a mountain as well as to sink a sea.

‡ Michaelis (Quest. 39) recommends inquiry for gold in Arabia. Vincent's theory (Periplus, book iii.) is supported by the popular belief that the precious metal is still found on Tebel Shora, near Mecca, and other parts of El Hejaz. Gosselin and D'Anville are thus confirmed in deriving the "Dedebæ" of Agatharcides and the "Debæ" of Diodorus from "Dahab," and in placing this city somewhere in the vicinity of Mecca.

made Yambu* on the twelfth day after our departure from Suez, and tottered on shore with cramped legs, some feverish, others covered with boils, and all with brains adust by reason of the sun. Shaykh Hamid, one of our party, complained that the heat had made his hair turn grey, and appeared to anticipate troubles therefrom during the approaching meeting with the "daughter of his uncle."

I might have saved myself all the hardships of this voyage by hiring a private boat; but two reasons prevented my doing this. In the first place it would have occasioned delay and expense; the smallest vessel would have cost me 50*l.* or 60*l.*, and such a luxury would have argued great wealth, rendering proportionate expenditure everywhere necessary. Secondly, I had an unlimited confidence in the efficacy of a rice and water diet against the fury of the sun. Abstemiousness was my safeguard during this voyage, my two subsequent journeys, and the pilgrimage time when my bare head and almost naked body were exposed to the fires of an Arabian September. As precautions I avoided washing, because warm water debilitates and cold gives fever; a little oil or melted butter, and occasionally a bath of lukewarm water and henna paste to cool the skin, were found amply sufficient. Against thirst I neither chewed bullets, nor washed hands, face, and feet, nor anointed my jaws with clarified butter, nor drank great quantities of liquid: the only remedy is patience, and after suffering for an hour or two the task is an easy one. When the skin is burned by the sun, white of egg cures the sore, which, if not attended to in these regions, may become an "Aden ulcer;" and as in hot climates cold kills, it is as well not to be underdressed by day, and at night to sleep with a sheet drawn over the head as well as the body. Meals should be thus distributed: a very light breakfast on first awaking from sleep, a second light breakfast before noon, and after sunset a substantial supper of rice and dates, bread and garlic. In spite of Waterton, I assert that the traveller's best friends are pipes and tea; nothing more refreshing than the latter—nothing more soothing to mind and body, no more rational, thoughtful, and memorial occupation, than the former.

I have nothing new to say of Yambu,† except that its population is considered the most bigoted and the best mariners in Western Arabia. The Custom-house officers, Turks—for here the Sultan reigns—have imitated the simple Arab method of charging 3 piastres per box, without even asking what its contents might be. This, however, is in the case of private travellers, as we were; merchants are heavily and arbitrarily taxed. The custom dues

* In Ptolemy the "Cambia village," clearly Yambu, is made the 11th stage from Ilysma.

† Or Emba.—G. W.

are the only cess drawn by Constantinople from the Northern Hejaz, and even this is said to be grossly peculated. After clearing our luggage we entered an upper room to escape the flies, Yambu's plague, and inquired for a Mukharrij, or Arab agent, to supply us with camels. The man came and informed us that the Hazimi clan was "out," and displaying signs of mischief by not replying to travellers' salams, which caused my companions to chew the cud of tough thought, for some had a single box, and others two, full of heterogeneous articles collected during their last begging trip. He added, however, that a grain-caravan would start early the next day for El Medina; so after great exertion of lungs, we hired beasts, paying 3 riyals (pillar-dollars) for each, half in ready money, the other half to be given on arrival at the capital. We "cleaned" ourselves, fed, looked to our weapons, boasted of our prowess, repacked our boxes, purchased provisions, and prepared for the journey.

On the 18th July, about 7 P.M. we passed through the gate of Yambu, and followed a directly eastward path along the plain between the Radhwah Hills * and the sea shore. There was no regular road; a trodden line traversed hard and level ground, strewed with lumps of granite and greenstone schist rounded by the action of water, with here and there a little stunted vegetation in the shape of acacias and tufts of grass, coarse enough for brooms. After 2 hours' slow march, we turned towards the N.E., and the ground began to undulate, a steady rise being perceptible; and at 3 A.M. we came to the halting-place, after a short march of 8 hours. I have throughout my journey estimated the pace of the Hejazi camel in caravan at the rate of 2 miles an hour, when travelling over a plain; and my distances have been corrected by a comparison with the camelmen's estimates.† Halting, we found a grain-cafila of about 200 heads, with its armed drivers, and for escort seven irregular Turkish horsemen, tolerably mounted, and each supplied with an armoury in epitome. Our camels were "nakh'd;"‡ the boxes were taken off and piled together, a pre-

* Moresby calls the whole range behind Yambu the Ridwah Hills Radhwah, as it is properly spelt, is the name of a single hill accounted sacred, and supposed, like Tur, Nun, Kobays, Ohod, and others, to be "of the mountains of Paradise." European geographers are, perhaps, justified in giving the name to this part of the Arabian "ghauts," as the natives of the country have no general term for it.

† The Badawin can always tell you the number of hours between two given places; but there is no other popular measure of length. The farsakh (parasang) and mil (mile) are words derived from Persia and Rome, and confined to geographical and theological writings. But the Badawi system is better than that of Egypt, where they estimate by "malakah," the distance between two villages, varying from 4 to 12 miles. The Sindhis have as ridiculous a standard "saddpandh," *i. e.* the distance of a voice, sometimes 100 yards, sometimes 3 miles; and the people of the Concan call it a "hank" or shout.

‡ To nakh a camel is to make him kneel, by crying "ikh-ikh" from the bottom of the throat. The word is classical and popular.

caution against thieves; my little bell-tent, the only one we had, was pitched, and we all, spreading our carpets upon the ground, fell into the slumber of the desert.

19*th July.*—At 9 P.M. we arose, said our prayers and smoked our pipes, congratulating ourselves upon our escape from the towns. I must observe that my companions were strictly devout whenever we met strangers, whereas, at all other times, one only—a grandson of the mufti of El-Medina—ever dreamed of preferring a prayer to a pipe. This is natural to the "sons" of a "holy city." About a mile westwards of our camp lay the little village of Musalhhal, a straggling line of miserable clay hovels. On the S. was a bright blue strip of Red Sea, and all around stretched an iron plain, where pebbles and gravel, scorpions and cicadæ, grow like grass, bounded northwards by a grisly wall of blackish rock. Here and there a shrub, fit only for fuel, or a tuft of herbage crisp with heat, met the eye; the furious sun, as the reeking atmosphere showed, was drying up the juice and sap of the land, and the very pebbles were blackened as if fire had passed over them, for the heavy dews, joining in large drops, here concentrate the morning rays, like a system of burning glasses. At 3 P.M we were ready to start, and with joy we saw a huge black nimbus rise behind the shoulders of Radhwah, and array itself, like a good genius, between us and our fierce enemy. All hoped that it contained rain; but it was only a "dry storm"—blasts of wind, hot as from a volcano, and fine sand—a phenomenon here common at this time of the year, and supposed to precede the autumnal rains.* For 3 hours we travelled in a S.E. direction upon a hard clayey plain and a sandy flat, over which several waters from the highlands have traced courses tending westward to the sea. Gradually siding towards the mountains, at sunset, we had sensibly neared them. As evening came on, we emerged from a scrub of tamarisk and an acacia-"barren," whose long sharp thorns are most troublesome to camel riders, and turned our heads due E., traversing an open country with a perceptible rise. After a false alarm of thieves, we journeyed 9 hours in a brilliant moonlight, and as the eastern sky whitened, we entered a sandy fiumara, strewed with stones and pebbles, about half a mile in breadth, and flanked by abrupt hills of primitive formation. I began by asking the names of peaks and dales, flats, hollows, and water-courses. A folio volume would not contain a three months' collection, so I desisted admiring the ingenuity of the Badawin in distinguishing between localities the most similar—the result of perceptive faculties highly developed by the

* There are sometimes a few drops of rain at the tail of a dry storm. I heard this from my companions, but did not observe it till when we neared Mecca, about the beginning of September. The Arabs of El Hejaz divide rains into three kinds: 1, Sariyat, the night rain-cloud, peculiar to winter; 2, ghad, the morning rain-cloud, common in spring; and, 3, ashiyat, the autumnal evening rain-cloud.

practice which a recurrence of landscape features, varying little and few in number, affords. After 2 hours up this torrent bed, winding in an easterly direction, we turned towards the S., and crossing sundry "harrah,"* or rocky ridges, and descending certain steep and difficult ria (declivities)† we found ourselves at 8 A.M., after a 34 mile march, at our destination, Bir-Said.‡ The well was a deep hole, with brackish water at the bottom, dug in a kind of punch-bowl, whose sole was tamped earth and whose walls were granite hills; upon their grim surface a few thorns of passing hardiness looked like vegetable ghosts; not a house was to be seen, not a sign of man. Our feet were scorched as we planted the tent-pole, and, after drinking our breakfasts, we spent the day in perspiration and semi-lethargy.

20*th July.*—As the sun began to decline westward we roused ourselves for the journey. Shortly after 3 P.M. the camels were laden and we started, with water-jars in our hands, through a storm of samum.§ The people assured me that this wind never kills a man in their Allah-favoured land. I "doubt the fact." At Bir-Abbas the body of an Arnaut was brought in swollen and decomposing rapidly—the true diagnostic of death by the poison-wind.‖ However, as these men drink hard, the case is scarcely a fair one: the samum may have done half the work, arrack the rest. And during my journey through El Hejaz I never found myself obliged by it to tie my kufiyah, or kerchief, Badawi-fashion, across my mouth.

We travelled for 5 hours in a N.E. direction up a diagonal valley,¶ through a country fantastic in its desolation; like the astronomer's moon, a world of naked hills, desert valleys, and

* Harrah (from harr, heat) is the generic name for lava scoriæ, and other rocks supposed to be of igneous origin, and therefore called also "Hajar-Jehannum," hell-stones. It also denotes a ridge composed of such material, and therefore may be the origin of "Ararene," the stony tract over which Ælius Gallus marched his legions.

† Ria is a classical Arabic word, still used in El Hejaz to denote a steep descent; a path between hills or a mountain road. "Akabah" is sometimes, especially in the Egyptian dialect, made to signify the same, though properly it means a precipice or abrupt declivity.

‡ "Bir," a well, like ayn, a source (or water found in clefts of rock), prefixed to the name of the excavator, forms as common a name for desert-stations in Arabia as it is in Syria.

§ Samum (from samm, poison). the poison-wind. The word "simoon" is a vulgar error, which deserves the fate of "Mahound" and "Termagaunt."

‖ Ibn Batuta is the first traveller that observed this peculiar symptom. I have seen it in Sindh, and frequently heard of it from Afghans and Persians.

¶ I venture to remark that Col. Jackson's division of valleys into longitudinal, transversal, and lateral, is both imperfect and confused. That learned geographer is a "stickler for propriety of terms:" he will therefore enter into the spirit of my observation. I would distribute them as follows:—1, Longitudinal, *i. e.* parallel to their ridges; 2, transversal or perpendicular to the axis of their main chain; and, 3, diagonal, forming an acute or obtuse angle with the principal line of mountains.

barren plains: even the sturdy acacias failed, and camel-grass could find no place for its hardy root. The road wound amongst mountains, rocks and ridges of granite, with here and there huge blocks, piled up as if man's art had aided nature to look hideous. Vast clefts seamed as scars the haggard face of earth; here they widened into black ravines; there they narrowed to mere lines white with glistening drift-sand. A sky like polished blue steel rested upon one horizon; on the other, a tremendous blaze of yellow light, untempered by the thinnest thread of mist. All was still as the grave: not a bird or a beast was to be seen or heard; their presence would have argued the vicinity of water, and although my companions detected Badawin lurking among the rocks, I decided these Badawin to be phantoms, fear-begotten. "What could have tied the leg of Allah's prophet to this bit of Jehannum?" I inquired of my companions. "Wallah!" replied one of these Voltairians, "because he could not afford a trip to Stambul."

Between 10 and 11 P.M. we sighted human habitations for the first time since leaving Musahhal, a long straggling village called El Hamra ("the Red"), from the colour of the fiumara upon which it is built; and El Wasitah, the "Half-way," because it is the middle station between Yambu and El Medina.* We wandered in search of an encamping-ground nearly an hour, for the hospitable villagers contented themselves with ordering us off every flatter patch of ground where we proposed to pitch our tents. I was warned by my companions to speak Arabic only, otherwise that the gentry of El Hamra would claim black-mail † for permitting me to pass through their streets. After much wrangling we found the encamping place; our jaded beasts were unloaded, the boxes and baggage were disposed in defence, and my friends spreading their rugs upon their valuables, prepared to sleep. I was invited to join them, but firmly declined the vicinity of so many steaming and snoring fellow-creatures. Some wonder was elicited by the Afghan Haji's obstinate recklessness; but a man from Cabul is allowed to do strange things.

21*st July.*—Rising at dawn, I visited the village. It is built upon a narrow shelf, between a high steep hill and a sandy fiumara about half a mile broad, with a winding bed. On all sides are rocks; so here, too, you find yourself in one of those punch-bowls which the Arabs seem to prefer to plains. This fiumara threads

* It is therefore considerably out of place in Burckhardt's map and those copied from it.

† Which they insolently call "tiziyat," a word properly applied to the capitation-tax, levied upon infidels—Jews, Christians, and others—in contradistinction to el fard, the Moslem poll-tax. But in El Hejaz, as elsewhere, men have the amiable habit of treating as "infidels" all whose tenets, practices, ideas, manners, dress, and conduct in general depart in any way from the standard of perfection—their own.

the heights all the way from the Medina plateau, and during the rainy season it becomes a raging torrent, carrying westward to the Red Sea the drainage of a hundred hills. Good water is found in it by digging a few feet below the surface at the re-entering angles: and El Hamra is further supplied by a fine spring which bubbles from the base of the southern hills.

The village is a collection of stunted houses, or rather hovels, made of unbaked brick and mud, roofed over with date-leaves, —rarely boasting a bit of plank for a shutter—thickly populated where the walls are standing, but, like all settlements in El Hejaz, half in ruins. It contains a few shops disposed in a long lane; and this bazar, like the other streets, is full of glare and dust. Palm-orchards of considerable extent supply it with dates, and my companions found grain so cheap that they laid in a store for their families at El Medina. Ready-made bread, horse-plantains, rice, butter, and similar edibles, are plentiful. Flocks of sheep and goats were driven in by surly shepherds, who would give no milk even in exchange for bread and meat. I bought a large lamb for a pillar-dollar, and we breakfasted merrily.

Near our encamping-ground was a fort, held by a troop of Arnauts, posted to defend the village and to escort merchant-travellers. It consists of a wall loopholed for musketry, and crenellated with "remparts coquets," trefoil-shaped, and about as business-like as the raised rim of a twelfth-cake. As usual, there is not, I believe, a well in the fort. Around it are clusters of palm-leaf huts, where the soldiery lounge and smoke, and near it a coffee-house—a shed, kept by an Albanian. It is wonderful that the Badawin cannot take these buildings: a false attack, firing the huts, would engross the attention of the defenders; whilst a rope-ladder, or a bag full of powder, would admit the assailants on the other side.

At El Hamra we received the pleasing intelligence that Shaykh Saad was definitively "out." This influential person, a beggarly little old Badawi, brown, toothless, and very thin, is the chief of the Sumaydat and the Mahamid, two influential sub-families of the Ham'dah, the principal family of the Beni Harb clan of Badawin. He aspired to rule all the Ham'dah, and, through them, the Beni Harb, in which case he would have been, despite Pasha and Sherif, *de facto* tyrant of El Hejaz. Therefore the two dignitaries *in esse*, after vainly attempting to poison and to shoot him with a pistol fixed in a Rob-Roy purse (made by the Frank and sent by the Sultan), raised up against him a worthy rival in the person of Shaykh Fahd, chief of the Beni Amr, the third sub-family of the Ham'dah family. Hence confusion worse confounded. Every one robbed every one he could. Saad's people, who were numerous, beat Fahd's; Fahd, supported by the autho-

rities, cut off Saad's supplies. Saad robbed travellers, and had the insolence to turn back the Sultan's mahmal, the ensign of imperial dignity, and to shut the road against the Damascus caravan. Fahd applied to the Sherif of Mecca, and when I left El Hejaz, it was reported that Abd-el Muttalab proposed to take the field in person against the arch robber, whose nephew he had slain some years ago. I did not believe the rumour, because probably the Sherif was at the bottom of the affair: he rules the Arabs, whilst the Pasha rules the Turks; the inevitable consequence of which is anarchy. Possibly Abd-el Majid has never heard a word of truth concerning El Hejaz, and conceives, with Sultanic *naïveté*, that there, as elsewhere, men tremble at his august name. But the fact is, the "lord Turk" holds a contemptible position there. The Sultan pays pensions in corn and cloth to the very Shaykhs, who arm their varlets against him; and the Pasha, after purloining all he can, hands over to his foes the means of subsistence. When the officials catch an Arab thief they dare not hang him. Caravans must pay black-mail and yet be shot at in every pass. This was not the case in Mohammed Ali's day. These, in El Hejaz, are the effects of those "liberal institutions," the charter of Gulhani and the new civil code, the silliest imitation of Europe's folly—bureaucracy and centralization —that the hand of bungling statecraft ever traced.* Such are the results of the novel penal code—a panacea, like Holloway's pills, for all the varied evils to which Turks, Arabs, Syrians, Egyptians, Persians, Armenians, Kurds, Albanians, Greeks, and a variety of European tribes are subject, and a system of Treasury paper, which even the public offices take at a discount. With a stern-souled and strong-handed despotism, like Mohammed Ali's, El Hejaz in one generation might be purged of its pests. By a periodical razzia and a proper use of the blood-feud, by vigorously supporting the weaker against the stronger clans, and by regularly deporting every Badawi of renown, the few thousand of half-naked bandits who now make the land a fighting-field, would soon sink into utter insignificance. But to effect this end the Turk requires his old "Stratocracy," which, bloody as it was, worked; whereas the Khate Sherif and the Tanzimat do not.

"The solid rule of civil government"

has done wonders for the Anglo-Saxon race; but we have yet to learn that the admirable exotic will thrive amongst the country gentlemen of Kafir-land or the ragged nobility of El Hejaz.

* This assertion may not be popular in England at the present time: nevertheless I am convinced that it is true. The incredulous reader may consult 'A Year with the Turks,' lately published, by Mr. Warington W. Smyth, a traveller who does ample justice to the Osmanli, and no more.

El Hamra is the 3rd station from El Medina, in the Darb Sultani (Sultan's road), the westerly highway along the seashore to Mecca. When robbers permit them, pilgrims prefer this route to all others, on account of the facility of procuring supplies, and passing through the holy place "Bedr." After midday on the 21st, a caravan *en route* from Mecca to El Medina entered El Hamra, and the new travellers had interest enough to procure an escort, and permission to proceed without delay. A little after 4 P.M. we urged our camels over the fiery sands to join these Meccans, who were standing ready for the march on the other side of the fiumara; and at 5 we started in an easterly direction up the bed. My companions had found relations and friends in the caravan, so they piously dismounted from their dromedaries during the sunset halt, and prayed with unction. I seldom joined in their devotions, because, in the first place, a sore foot excused me; and secondly, because the character, though highly respectable, is a very inconvenient one in these regions. Shortly after the night set in we came to a dead stop: a dozen different reports arose to account for this circumstance, which was occasioned by a band of Badawin having manned a pass, and positively objected to admit our escort of 200 irregulars. So the horsemen galloped home, and we resumed our journey. This night brought forth no other adventure: we traversed rising ground eastwards, and about midnight passed through another long straggling line of village, called Jadaydah,* or El Khayf.† The body of the place lies on the left of the road leading to El Medina: like El Hamra it has a fort, springs of tolerably sweet water, and a date ground. A celebrated saint, Abd-el Rahim el Barai, has left his holy bones here. A little beyond it is the Bughaz,‡ or defile, where the Egyptians under Tussum Bey were totally defeated by the Harbi Badawin and the Wahhabis, in A.D. 1811. At 4 A.M., having travelled about 24 miles due E., we encamped at Bir Abbas.

22*nd.*—The position of Bir Abbas resembles that of El Hamra, a bulge in the hill-girt fiumara, about 2 miles wide. There is the usual stone fort, where troops are stationed to protect travellers, hovels, and a coffee-house of date-leaves, and a hut or two, called a bazar, but no village. We encamped in loose sand, with which the samum filled the air; not a tree nor a bush was in sight, and the animal creation was represented by hardy locusts and swarms of flies. Before noon a caravan brought in two dead

* Gadaydah.

† Khayf, a "declivity," or a "place built upon a declivity," is a common name in this part of Arabia.

‡ Vincent (Periplus) derives this word from the It. bocca, a mouth. It is Turkish, and literally means a throat or gorge. The pure Arabic is nakb, still used by the Badawin.

bodies. a horseman shot by the Badawin, and an Albanian killed by sunstroke, or the poison-wind. Shortly after mid-day we saw a caravan travelling Mecca-wards: it was composed chiefly of Indian pilgrims in "ihram,"* who had been allowed to pass, because a pound sterling could not have been collected by spilling the life-blood of a hundred of them, and Saad the Robber sometimes does a cheap good deed. In the evening, when strolling about, we met some shaykhs entering Bir Abbas to receive their pensions. They were men of Harb, dignified ancients, habited in the picturesque Badawi costume, with erect forms, fierce, thin features, and white beards, well armed, and mounted on high-bred and handsomely-equipped dromedaries. Preceded by half-naked clansmen. carrying spears 12 or 13 feet long, garnished with single or double tufts of black ostrich feathers, and ponderous matchlocks, which they discharged on approaching the fort, these shaykhs were a perfect picture. Evening was ushered in by the dropping of distant shots, a sign that the troops and hillmen were at work. My companions pointed with a fearful meaning to the far blue peak where terrible Saad holds his court, and we slept upon our boxes in "doleful dumps," for none could say how long we might be confined in our dreary dungeon.

23*rd.*—After a day of heat, sand, samum, wrangling, and general discomfort, we were revived by a report that Arnaut troops would be in the saddle that night. No one believed in such good luck; before sleeping, however, we made preparations for starting at a moment's notice. About 11 P.M., as the moon passed over the eastern wall of rock, we heard the glad sound of the little kettle-drum beating the "General." Within 10 minutes we had loaded the camels, and hurriedly crossing the sandy flat, we found ourselves in company with three or four small caravans, forming one large body for better defence. By dint of elbowing, arms in hand, we, though the last comers, secured a place in the middle of the line. On such occasions all push for the van, none aspiring to occupy that dangerous seat of honour, the rear.

24*th.*—We threaded the fiumara eastwards, and at dawn entered an ill-famed gorge, Shuab el Haj, the Pilgrim's Pass. As we neared it, loud talkers became silent, and in their faces fear was written in a fine clear hand. Presently, from the cliff on the left a thin curl of blue smoke rose in the morning air, preluding the matchlock's loud ring. A number of Badawin, boys and men, were swarming like hornets over the crest, and clambering with admirable agility up the precipices, till comfortably seated behind a breastwork of stones, piled up as a defence and a rifle-rest, they fired down upon us with perfect convenience to themselves. It

* The pilgrim's costume.

was useless to invite them to fight us upon the plain like men; on the eastern coast the robbers will sometimes do this, but not in El Hejaz, and it was equally unprofitable to shoot at stones. Moreover, had a Badawi been killed, the country would have risen *en masse:* 3000 or 4000 robbers might have the courage to overpower a caravan, in which case there would have been a general cutting of throats. Their fire was directed principally against the Arnauts, who called for assistance from the party of shaykhs that had accompanied us from Bir Abbas. But those dignified ancients, dismounting and squatting round their pipes in council, came to the conclusion, that as the Badawin would probably turn a deaf ear to their words, they had better spare themselves the trouble of speaking; so we blazed away as much powder, and veiled ourselves in as thick a veil as possible. We lost twelve men, besides camels and other beasts of burden.

After an hour of hurrying on we passed Shuhada, an unremarkable spot, with a few ruined walls, and a cluster of graves, each an oval of rough stones, containing the "martyrs" crowned with glory in one of the Prophet's plundering expeditions. In 30 minutes we reached Bir el Hindi, a favourite halting-place, where some forgotten Indian had dug a well: we jogged on, being scarcely out of the cut-throat gorge and the nests of the Ham 'dah. Then leaving the fiumara, we struck off northwards into a well-trodden road running over stony rising ground. The heat became sickening: at no time is the sun in these regions more dangerous than between 8 and 10 A.M., and it was 11 o'clock before we encamped. The station, Suwaykah, is a rugged plain covered with stones, coarse gravel, and thorn trees, and surrounded by inhospitable rocks, pinnacle-shaped, and calcareous, on a granite base. The well was at least 2 miles distant, not a hovel was in sight, or sign of life, save a few Badawi children feeding their starveling flocks; but my companions looked lovingly upon the hideous spot—their boxes were now safe. That night we travelled about 22 miles due E. up a steady rise.

We pitched the tent under a villainous mimosa, the tree whose shade is compared by these poetical thieves to the false one that deserts you when most needed; and I enlivened a long, hot, dull day by the excitement of recovering certain small sums lent to divers friends, the "almighty dollar" having been the talisman with which I opened their hearts. At 4 P.M. we mounted, all of us in the crossest of moods, and travelled towards the N E., up rocky hill and down stony vale, which made the camels stumble and tumble regularly once per mile.

25th.—Day dawned before I had shaken off the lethargic effects of such a night. All my companions were hurrying on with reckless haste. "More robbers?" I inquired of a neighbour: "No,

we are walking upon our eyes—in a minute we shall sight El-Medina." Rapidly we crossed the muse-loved fiumara, El Akik; it was dry as summer's dust, and its "beautiful trees" were stunted fire-wood.* Presently we came to a mudarraj, a broad flight of steps cut in the rock: † arrived at the summit, we passed through a lane of lava with steep banks, and suddenly saw the holy city lying upon the plain before us.

We halted our beasts as if by word of command; and all of us, tired and hungry as we were, dismounted, and sat down to enjoy the view. "O Allah! this is the sanctuary of the Prophet; make it to us a protection from hell-fire, and a place of refuge from eternal punishment! O open the gates of thy mercy, and let us pass through them to the land of joy!" And again—"Live for ever, O best of Prophets! Live in the shadow of happiness, whilst the bird of the tamarisk (the dove) moaneth like a childless mother—whilst the west wind bloweth gently over the highland of Nejd—whilst the lightning flasheth bright in the firmament of El Hejaz!" Such were the poetical exclamations around me, whilst features were working with excitement, and eyes swam with tears. I now fully understood the meaning of a dark phrase in the Moslem ritual: "And when his (the pilgrim's) sight falls upon *the trees of El Medina*, let him raise voice and bless the Prophet with the choicest of blessings." In all the fair view before us, no feature more striking, after the desolation of the journey, than the gardens and orchards of the town.

The distance traversed that night was about 20 miles, in a direction varying from E. to N.E. We reached El Medina on the 25th July, thus taking nearly eight days to travel about 130 miles.

I subjoin my computation of the stages:—

From Yambu	to	Musahhal	16 miles.	
Musahhal	,,	Bir Said	34 ,,	
Bir Said	,,	El Hamra	14 ,,	= 64, half way.
El Hamra	,,	Bir Abbas	24 ,,	
Bir Abbas	,,	Suwaykah	22 ,,	
Suwaykah	,,	El Medina	20 ,,	= 66.
		Total	130 miles.	

My camel-men were of the Harb tribe, corrupted by Turkish

* El Akik, said the Badawin, is a branch of the fiumara of El Hamra.

† This is one of the Harratain or Two Ridges of which the Prophet said, "Verily there is healing to the sight, if it fall upon Mount Ohod, and the Two Ridges near." The other lies N. of the city, on the road to Hamzah's tomb, which lies at the foot of Ohod. El Harratain is the popular form of E Ḥarratáni, the oblique case usurping the place of the dual-nominative in the colloquial dialect of El-Hejaz, as in Syria, Egypt, and the Maghrab. Both these harrahs are long, broad ridges of the black scoriated lava, of which buildings in this part of El Hejaz are composed.

example and the profession of taking in pilgrims. They made no difficulty in answering my questions about the country. To obviate curiosity or suspicion, I had an abstract of Arab geneaologies, and always began my questionings with, "You men of Harb, on what lineage do ye pride yourselves?" Notes must be kept private, and sketches must never be seen; but these people do not object to a learned man writing in a MS., as if commenting upon it, and for other purposes he may retire into solitude and pray. The best pretext for avoiding company is "sauda"—a melancholic temperament—all Orientals, especially the Arabs, being subject to fits of nervous depression, when they fly to solitude as to a friend. Without some such excuse a traveller would be overwhelmed with society: his hosts will eat with him, drink, smoke, talk, pray, and rather than leave him alone, sleep with him.

My next communication, if you desire it, will be my Itinerary from El Medina to Mecca.* Once more offering my best excuses for the delay in forwarding this paper,

I have the honour to be, Sir,
Your most obedient servant,
RICHARD F. BURTON,
Lieut. Bombay Army.

Dr. Norton Shaw, Sec. R. G. S.

VI.—*Notice on the Variation of the Magnetic Needle at Aden.*

By Capt. S. B. HAINES, I.N.

Communicated by the EAST INDIA COMPANY.

Read April 10, 1854.

IN my letter of January 8, 1852, relative to the probability of a change in the magnetic variation, I then gave proof that, between the year 1800 and my observations in 1834, a change of 3° 47′ 30″ had taken place; and that experiments might prove a still further change, rendering it necessary that it should be ascertained, so that due allowance might be made for it by navigators.

I have now the honour to report that, having had a very superior 10-inch theodolite lent to me, in addition to my own, I have taken, during September and October, many observations in order to ascertain the change of variation at Aden since I surveyed it in 1834; and beg to submit the results to Government, as they prove that my opinion last year was correct, and that since 1834 the variation has diminished westerly 2° 12′ 40″, being in

* Since received.—ED.

October, 1853, only 2° 49′ 20″ westerly. The following are the results:—

September Observation.		Westerly Variation.		
Obs., 5 means,	Azimuths	2°	58′	0″
	Amplitude	2	48	4
Obs., 3 means,	Azimuths	2	53	0
	Amplitude	2	45	6
	,, ,,	2	50	0
	,, ,,	2	52	10
	,, ,,	2	47	10
	,, ,,	2	46	0

October Observation.	Westerly Variation.		
Variations, West	2°	43′	0″
Azimuths	2	48	3
Amplitude	2	51	0
Azimuths	2	45	0
Amplitude	2	54	0

Means of 27 *Observations.*

Means of 27 observations with a most beautiful instrument, with Col. Everest's improvements, in September and October, 1853, at Aden	2°	49′	20″	Westerly variation.
Means of 130 observations during the survey of Aden in 1834	5	2	0	Westerly.
Variation diminished in 19 years	2	12	40	

This difference of variation is also proved by taking the true and magnetic bearing to fixed points; the "means" of numerous magnetic bearings to different fixed points now differing from the magnetic bearing on the survey 2 12′, while the *true bearings* all agree.

The variation having diminished 2° 12′ 40″ westerly at Aden, renders it almost certain that a still greater change (even, I imagine, $\frac{1}{4}$ of a point) has taken place in the N. part of the Red Sea since the survey; which $\frac{1}{4}$ of a point, during a long and dark night, with steam-rate at 10 knots, will place a steamer 6 or 7 nautical miles from her supposed position; and might cause, particularly if assisted with a slight current, incalculable mischief. My anxiety for the public good has prompted me to make these observations, and I do not hesitate to say I am confident they are correct.

It is also probable that the variation has changed during the last twenty or thirty years along the African, Arabian, Persian, Beloochistan, and Indian coasts; which, however, is not of such vital importance to the navigator as while navigating at a *rapid* steam-rate between the narrow limits of Red Sea dangers.

It may be observed that steamers can ascertain the variation by observation; but, from long and tried experience, I assert such observations cannot be trusted sufficiently for Red Sea navigation. Azimuth compasses cannot be pointed to a nicety, and all vessels have more or less local attraction, which is not always sufficiently attended to.

I would respectfully suggest that the change of variation at Aden be made public as soon as possible.

VII.—*On the Physical Geography of the Red Sea.*

By Dr. Buist, of Bombay, F.R.G.S.

Read April 10, 1854.

Boundaries.—The Red Sea is one of the most remarkable estuaries on the surface of the globe; separating the N.E. portion of Africa from Arabia for the space of above 1280 miles, it seems at no very remote period to have been connected with the Mediterranean. Opening into the Indian Ocean, through the Gulf of Aden, it commences at the Straits of Babelmandeb, lat. 12° 30′ N., long. 43° 40′ E., extending in a north-westerly direction till it terminates in the two Gulfs of Akabá and Suez, the upper extremity of the former being in lat. 29° 36′ N., long. 35° 2′ E., that of the latter in lat. 30° 2′ N., long. 32° 38′ E. From the Strait to Suez in a direct line is 1230 miles; the greater strait itself measures in breadth 13 miles, the lesser 1¾ miles; the two together, which constitute the entrance to the sea, 14¾ miles, or including the island of Perim, which separates them, 16¼ miles. Its entire circuit measured round both gulfs is 4020 miles, its area 108,154 miles, and its cubic content probably about 800,000 miles.* Its greatest breadth under the parallel 17° N., that is one-third up the sea, is 192 miles, and it narrows pretty uniformly towards both extremities, being 72 miles across at Ras-Mahommed, where the peninsula of Mount Sinai splits its upper extremity into two, and nearly a similar breadth at Gibbel Zugar, under the 14th parallel.

Gulf of Suez.—The Gulf of Suez from its upper extremity to its entrance is 167 miles in length; its greatest width is under 30; at its mouth it is about 17 miles from shore to shore; its area in all is about 2000 square miles. Its greatest depth is about 50 fathoms, its average about 22; excluding the shallows at Suez, it occupies from 8 to 10 miles at its upper extremity.

Gulf of Akabá.—The Gulf of Akabá is about one-third the area of that of Suez, or 800 miles; it is 100 miles in length, 16 across at the widest, and 7 at the strait. It is more than double the depth of its sister gulf, being about 120 fathoms for two-thirds of its length, reaching at one point the depth of 200 fathoms without bottom. Its mean depth altogether is probably not less than 70.

Depth of the Red Sea.—Although two-thirds of the area of the Red Sea have never been sounded, and no sufficient data exist from which to form a judgment of its depth, there is no reason to

* The figures representing area, circumference, and content are to be received as approximations merely—especially the circumference; the area will probably be found not very far from truth.

believe it to be very great. There are soundings all around its shores from 10 to 20 miles out from Judda, in lat. 21° 30′, to the approach of the volcanic region in lat. 17°, and frequent cross soundings have been obtained from this southward to the strait. From 21° to 27° 30′, or for nearly 400 miles in length, there is a space from 50 to 70 miles in breadth, or an area of about 20,000 miles, that seems never to have been sounded; and this part has never been examined since the original survey was made 20 years ago. Being free from islands, reefs, and shoals, it occasioned no alarm to the navigators, and the surveyors had no time to devote to mere questions of physical geography. The greatest depth that seems ever to have been tried is 400 fathoms, lat. 25° 20′, at which no bottom could be found; and there appears to be a gulf from 5 to 10 miles wide down the centre of the sea, varying from 150 to 250 fathoms, with abrupt and precipitous sides. The average depth of the central region of the sea to an extent of about 40 miles or so may probably be about 100 fathoms; the average depth of the whole sea probably falls short of 40. A reef or shallow runs across from Mocha, lat. 13° 30′, to the African shore; it has been very carefully sounded all along; it affords an average depth of from 25 to 30 fathoms; its greatest depth being 40, near mid-channel. From this the sea deepens again to 125 fathoms* as it approaches the strait. The great strait, as already mentioned, is 16 miles across; its average depth is about 80 fathoms, its greatest 125; and for a breadth of nearly 6 miles in mid-channel the depth exceeds 100 fathoms. The narrow channel being that which vessels from Aden almost always prefer in ascending the Red Sea, varies from 12 to 17 fathoms in depth, but there is 30 feet of water up to both shores with a fine sandy bottom, so that navigators feel no apprehension in traversing it at any hour. The Gulf of Aden, which continues the communication from the Straits to the Arabian Sea, is a funnel-shaped estuary above 900 miles in length and nearly 200 across from the N.W. point of Africa to the Arabian shore. Its general characteristics are similar to those of the lower part of the Red Sea—it is remarkable for the violence of its currents, which will be noticed afterwards, and for the depth of its central channel and shallowness of its shores.

The Tides at Suez are about 5 feet at neap and 7 at spring. The rise and fall at Ras-Mahommed is about 5 feet—high water at 6 o'clock. The direction of the wind makes a difference of about 4 feet in the depth of the water near Suez: the banks which are left dry by the N. wind are well covered with a breeze

* The depths are taken from the chart, but the greater part of the soundings are marked as having "no bottom," so the actual depths are certainly beyond this,—how much we know not.

from the S. We know little of the tides over the rest of the sea. At Aden, 80 miles without the strait, where continuous observations have been taken by gauge for three years, the tides rise 4 feet at neaps, and nearly 8 at springs; high-water occurring at 1·30; the sweep of the tides, as well as the hour of high-water, being remarkably irregular. The Red Sea probably derives its name from large portions of it, as well as of the Arabian Sea, being covered with patches, from a few yards to some miles square, of a blood-red colour, derived from a species of animalculæ particularly abundant in the spring months, and which dye the upper waters of the most intensely blood-red hue that can be conceived. There is nothing else about the sea that is red, and a considerable expanse of this, encountered by an early navigator who had not met with any similar phenomenon elsewhere, would seem warrant enough for its name.*

Islands.—Though islands are numerous along both shores of the Red Sea, they are for the most part of inconsiderable size,

* Since the preceding remarks were in type I have fallen in with a paper by Ehrenberg on the bloody appearance of water, a translation of which appeared in 1831 in the tenth volume of Jamieson's Edinburgh Philosophical Journal. After enumerating instances quoted by the ancients of red snow, red rain, and rivers and seas covered with blood, he quotes a list of our experiences on these subjects in modern times. I take the following entire; he comes to the same conclusion as that which I have arrived at as to the origin of the name of the Red Sea:—

"In 1823 I was for a number of months at Tor, on the Red Sea, in the vicinity of Mount Sinai. On the 10th December I there observed the striking phenomenon of the whole bay which forms the harbour of Tor of a bloody colour. The main sea beyond the coral reef that encloses the harbour was, as usual, colourless. The short waves of the calm sea, during sunshine, carried to the shore a bloody coloured slimy mass, which it deposited on the sands, so that the whole bay, fully half a league in length, at the ebb of the tide exhibited a blood red border of more than a foot broad. I took up some of the water itself with glasses and carried it to my tent at hand on the sea shore. It was immediately discovered that the colouring was caused by small flakes, scarcely distinguishable, often greenish, sometimes of a lively green, but for the most part of a dark red colour, although the water itself was not stained by them. This very interesting appearance attracted my attention as explanatory of the name of the Red Sea, a name hitherto so difficult of explanation. I, for many days and with perfect leisure, accurately examined the appearances and made microscopical observations on the colouring mass. The flakes consisted of small spiral or longish irregular bunches of oscillatoriæ threads, which were enclosed in a gelatinous sheath, and the flakes neither resembled one another nor the threads in each flake. In the glasses placed beside me I observed that the flakes during the heat of the day and in sunshine floated together on the surface of the water. During the night and when the glasses were shaken they descended to the bottom. After some time they returned to the surface. The observation made by Dr. Englehardt on Lake Murten was very similar to this appearance, and the delineation of the single threads by De Candolle exhibits a very close relation to it. De Candolle informs me he has preserved no dried specimen of that substance, for which reason no comparison can be made. The gelatinous covering and the union of many threads into very small spiral groups give to the substance of the Red Sea a peculiar character, which entitles it to form a particular genus of alga. . . . . The appearance of the Red Sea was not permanent, but periodical. I observed it several times: on the 25th and 30th December, 1843, and on the 5th January, 1844."

and they have been included in the measurement of the area: their structure will come to be spoken of along with that of the rocks on the opposite shores.

Temperature.—The surface temperature of the Red Sea, agitated by the paddles of the steamers, varies from 60° to 85°. By a series of hourly observations made on it in April, 1840, when it ranged from 80° to 85°, it was in general from two to three degrees hotter than the air from midnight to dawn, and about as much colder from noon to sunset. Captain Newbold's observations for May, 1844, give from 82° to 84° as the midnight and noon temperatures, those of the air at the same hours being from 85° to 90°. The matter is one that has been but little attended to, though it is probable that the Red Sea scarcely differs in this from the outer ocean.

Appearance and Saltness of its Waters.—As the Red Sea is entirely surrounded by a hard, sandy, or rocky shore, without a rivulet, and scarcely a drop of rain falling into it from year to year, its waters are remarkable for their transparency and purity, even over a long expanse of shallows. Where the sea is deep and distant from the land, its colour is of the most intense blue, changing from greenish-blue to bluish-green, green, and light green, as the coral reefs approach the surface—the corals themselves being mostly white. It was long supposed to be considerably salter than the general ocean, a supposition now proved to be unsound. In 1837 Dr. Malcolmson found the water off Cossir of specific gravity 1 035, indicating a degree of saltness greater than that at Suez, but not so great as that of many parts of the Atlantic. The water at Mocha and Camran hardly at all differs from that of the outer sea. In 1848 Mr. Morris, engineer, obtained for me specimens of the water from seven different stations, nearly equidistant from each other all the way down: they were examined by Dr. Giraud, Professor of Chemistry at Bombay, and the following were the results:—

		Lat.	Long	Sp. gr	Saline Contents in 1000 parts.
		° ′	° ′		
No. 1.	Sea at Suez	29 40	35 2	1·027	41·0
2.	Gulf of Suez	27 49	33 44	1·026	40·0
3.	Red Sea	24 29	36 0	1·024	39·2
4.	Ditto	20 55	38 18	1·026	40·5
5.	Ditto	20 43	40 3	1·024	39·8
6.	Ditto	14 34	42 43	1·024	39·9
7.	Ditto	12 39	44 45	1·023	39·2

Dr. Giraud gives the following note of the saltness of the sea from a variety of other localities. From this it will be seen that the Mediterranean at Marseilles is of the same saltness as the Red Sea at Suez, while the Atlantic in the latitude of the Canaries is $\frac{1}{100}$ more salt.

	Grs.	
Baltic	20·0	in 1000
Frith of Forth	30·0	,,
Boulogne	32·0	,,
Havre	36·0	,,
Bayonne	38·0	,,
Marseilles	41·0	,,
Atlantic, Canaries	44·0	,,

These experiments were made on water taken from the surface of the sea. We are ignorant of the character of the water in its depths, but have no reason to suppose it to differ materially from that at the surface.

Climate and Winds.—From the general conformation of its shores, the winds in the Red Sea for the most part blow in the direction of its axis, being for eight months in the year from the N.W., for the remainder from the S.E. The characteristics of the climate of the upper and lower portions of the sea differ, as may be expected, materially from each other, that of the middle portion partaking occasionally of both. The N E. monsoon, which commences in October and continues till May or June, blows with considerable freshness in February, but is, as summer sets in, occasionally interrupted almost altogether. On entering the Red Sea it is deflected, and pursues a path almost at right angles to that which it had previously pursued, becoming a south-easterly wind as it rushes up the axis of the sea. Confined in a comparatively narrow compass, it blows with considerable violence, and is stronger towards the Arabian than the Abyssinian shore in the lower part of the sea. It is freshest in the end of October and beginning of February, and is sometimes felt as far up as Suez, so that generally by the time that it gets as high as Judda, lat. 21° 30′, it becomes for the most part light and variable. It slackens as it passes the Harnish and Zugar islands under the 14th parallel, where the sea begins to extend in breadth. Further to the northward it softens still more, till it is lost in the languid winds on the coral reefs of the Arabian coast, or turning to the westward, wanders away out towards the islands of the African shore, until, changing its course, it returns again into itself. In October and January the weather in the lower part of the sea is thick and hazy, obscuring objects until they are close at hand, and squalls and rain are frequent and heavy. Captain Ellowan states, that in December land and sea-breezes were prevalent on the Arabian shore, half way up the Red Sea, with occasional southerly winds; in January it was frequently squally, with thunder, lightning, and some rain in the southward, occasional squalls being experienced in February. On the African coast, in lat. 15°, the prevailing winds in March are westerly, drawing off from the land towards night, from the sea during the day. In April regular land and sea-breezes pre-

vailed, the winds generally from the N., though twice or thrice from the S., and the weather often hazy. In May the wind mostly comes from the land, the sea-breezes becoming light, sand squalls being experienced towards the beginning of June.

When the south-easterly monsoon begins to blow in the north-westerly part of the Indian Ocean, north-westerly winds prevail in the lower half of the Red Sea, where they blow with considerable violence in June and July, becoming light and variable in August and September. As the time of their extinction approaches, there are sometimes calms of several days' duration experienced, when the sea-breezes become excessive On the African shore, sea and land breezes are experienced towards the strait, with northerly winds nearly all the year round. The fine season prevails from August to October; showers, such as they are, are chiefly experienced from November to March. The winds from Suez to Judda are mostly northerly throughout the year, and occasionally blow with considerable violence. From December to April southerly winds are occasionally experienced in the Gulf of Suez, at times freshening into a gale, and blow for several days. Captain Carless tells us, that it is almost always stormy in the Gulf of Akabá, the squalls being dangerous and violent where the two gulfs unite. Captain Cruttenden states, that when he visited Senna in July, 1836, no rain had fallen, either there or at Mocha, for four years, but that during his stay heavy rains fell for nearly a month. These remarks are all taken from the writings of the officers on the survey, some of which still remain unpublished, and are mostly from the sailing directions of Captain Moresby. We have no regular meteorological observations from any part of the Red Sea higher up than Aden, where the evaporation amounts to about 7 feet annually. Off the peninsula of Sinai, according to the experiments of Captain Carless, it amounts to between 8 and 9 feet, and when the dryness of the desert winds is taken into account, the evaporation over its whole surface will probably be found to fall little short of 8 feet annually; and certainly not more than an inch of rain or rain-water is added in the course of the year; the showers, heavy as they are, which occasionally fall on its shores being drunk up by the thirsty sands which cover them all around.

Currents.—From the general character of the sea as just described, a very singular series of occurrences may be expected to make their appearance near the strait, to compensate an evaporation of nearly a quarter of an inch daily, or nearly 8 feet annually, over an area of 108,154 miles, or in all 165 cubic miles of water raised in vapour in excess of the little rain that falls. Were the geological theory true, that the water, concentrated at the surface, occasioned a deposit of salt at the bottom, the Red Sea must long

ago have been transformed into a solid mass, and if the assumptions as to the capacity of the Red Sea be correct, the waters would be dried up in the course of a hundred years, were no water to enter from without. In the course of three thousand years (and for this time it has been known to us) it must have been converted into a solid mass of salt, had the whole saline matter, carried in from without by the current required to feed evaporation, remained within the strait. Yet we know that, in point of fact, it is, at the surface at all events, not one whit more saline than the outer ocean; and we have no reason to believe that its lower waters differ materially from those which float at the surface. The various officers of the survey were, from the commencement of their labours, struck with the extraordinary diversity of the currents within the Gulf of Aden. "My endeavours," says Capt. Haines in a paper prepared in 1849, "to reduce them to principles which might guide others have hitherto entirely failed, but I am at this moment not satisfied how the currents themselves are set in motion, whether by submarine impulse, by a change in the component parts of the water occasioned by different degrees of evaporation, or by the pressure of prevailing winds. At sea I have experienced a current running in circles, or in bands, 60 miles in extent, and have not unfrequently borne up, and set topmast studding-sails with a favourable wind, in order to escape the counter current, when, by observation, I have found the vessel in another stream out of the former current, and have hauled to windward again, and beaten fast sailers, which were working inshore." This corresponds almost word for word with the account given by Dr. Scoresby of the bewildering currents produced by the tepid waters of the Gulf-stream running N., and meeting the cold and heavy polar currents moving southward: the cause of both being the encounter of streams of water of different weight: the specific gravity of the two depending in the one case on the diversities of temperature, in the other on differences of saltness. The error into which those who assume the salting up of the sea, seem to have fallen, is that of supposing the water concentrated by evaporation to remain at the surface till close on the point of saturation, and then sinking only when ready to deposit its salt, whereas, in point of fact, the instant the upper waters become one atom heavier than those beneath them, they will sink down either till they reach the bottom, or meet with others of the same gravity as themselves. A mass of brine, by ever so little salter than the surrounding waters, may thus accumulate in the recesses of the sea, until it rises to the level of the Mocha barrier, when, by its own gravity, it will at once flow over, and produce an outward under-current, by which the whole mass of the sea will come to be discharged as it is concentrated. Between this and the upper

inward-flowing current, required not only to supply the whole 165 cubic miles vaporized, but the vitiated water discharged, there will in all likelihood be a mass of stagnant water brought to rest by its upper and lower surfaces being acted upon in opposite ways by the conflicting currents. These things are matters of physical necessity, dependent on the first principles of hydrostatics, and not requiring experiment for their establishment. It seems more than probable that the Red Sea changes the whole of its waters at least once a year; and we may yet be able to determine the fact by observation. As it is, we know that a strong current sets along the coast of Arabia, towards Meckran and Scinde, then sweeping southward by the shores of Hindostan, where it is diluted by the enormous falls of rain, of which probably not less than 10 feet are discharged into the ocean annually from an area of 24,000 miles, or 40 cubic miles of water, it next crosses the Arabian Sea towards Zanzibar, and gives off its surplus vapour as it returns along the shores of Africa northward to the Red Sea, again to perform the task it originally accomplished. The whole amount of water, evaporated from the nearly rainless shores to the N.W. of the Arabian Sea, probably exceeds 400 cubic miles, the further deficiency being supplied by currents from the southward.

The Shores of the Red Sea.—Around the whole of the shores of the Red Sea is a belt of sand and gravel, sloping inward from high-water mark to a distance varying from some hundred yards to that of many miles. It abounds with shells and corals, identical with those in the sea itself, and is obviously an upheaved beach of comparatively modern date. It is not very easy to determine either the extent or the elevation of its landward margin, as a long series of upheavals appear in these parts to have followed each other, so that a much more minute survey than has hitherto been bestowed upon it, would be required before what belongs to each could be determined. I have found Red Sea shells scattered in profusion all over the Desert, between Cairo and Suez, at an altitude of 800 feet, and they are mentioned as existing at an elevation of at least 2000. Dr. Carter describes a cavern near Ras-Morbat, in southern Arabia, the floor of which is a few feet above high-water mark, the roof being 30 feet high, obviously excavated by the waves. The face of the cliff on a level with the roof is full of borings of lithodomi, and Dr. Carter supposes that it was formed whilst slowly emerging from the sea.*

There are many similar caverns in the interior; the roofs and floors of all are incrusted with sulphate of lime, as stalagmites and stalactites. The cliffs along the shore of Africa, towards the mouth

* Geography of S.E. Coast of Arabia: Trans. Bomb. Asiat Soc, 1851, p. 252.

of the Gulf of Aden, are found all pierced with similar caves, as I have no doubt those around the Red Sea would be found to be, were they examined; and I have come to the conclusion that the altitude of the most recent of these upheavals varies from 5 to 30 feet, being different at different points.

During his investigations with a view to the construction of a canal between the Mediterranean and the Red Sea, Mr. Cubitt found the level of the two seas the same; and there can be little doubt that the bitter lakes in the isthmus at one time formed the head of the Red Sea. Mr. Stephenson has ascertained that the sea-shells in this district, as well as those on both the raised beaches in that neighbourhood, are the same as those now prevailing in the Gulf of Suez; so that, at a period comparatively recent, all the tertiary beds forming the bottom of the sea and the contiguous land must have been elevated from 12 to 18 feet. Historical events afford us a date within which this must have occurred. Six centuries before the Christian era, Darius Hystaspes completed a canal from the Nile, a little above Bubastes, to the Red Sea near Patamos; it was in some places 150 feet wide and 30 feet deep, and was navigable for vessels of considerable burden; while the Nile which supplied it was high, the waters serving for irrigation. The vicinity of several important cities, the ruins of which are still scattered around, indicates that the district at this period was possessed of great fertility and a large population. Within three thousand years, then, the alteration of level must have occurred which rendered it impossible longer to supply the canal from the waters of the Nile. In this view I have adopted both the facts and the inferences of Mr. Cubitt, Mr. Stephenson, Capt. Newbold, Miss Corbaux, and Mr. Glynn, not having crossed it myself;* but I had come to exactly the same conclusions, and published an account of these four years before the earliest of the writings referred to appeared. In Kattywar in Western India we have a proof of the same thing, near the Runn of Cutch, where the ruins of a city, known to have existed less than three thousand years ago, are now found 15 feet beneath the surface of the ground—8 or 10 feet above high-water mark. Within this time a descent of at least 20 feet must have occurred to permit this mud to be deposited, the whole having reascended to its present level probably about the same time when the Rúnn of Cutch ceased to be an inland sea, by reason of the elevation of its basin. We are now minutely acquainted with the character of the Isthmus of Suez, destined, it is to be hoped, at no great distance

* Capt. Newbold's Visit to the Bitter Lakes, Isthmus of Suez, Trans. Roy. Asiat. Soc., 1845, vol. viii. p. 355; Mr. Glynn on the Isthmus of Suez, on Ancient Canals of Egypt, Institution of Civil Engineers, 1852; Miss Fanny Corbaux's Letters in the "Athenæum," 1852.

of time to be traversed by a canal or railway connecting the two seas together.*

It is singular that we should know so little that is authentic or accurate of the Wadi Arabá, or the region which intervenes between the Gulf of Akabá, the other terminal point of the Red Sea, and the great depression of Palestine, considering its perfect accessibility and the frequency with which it has been traversed. Even the little knowledge we flattered ourselves that we possessed, has now vanished. A writer in the 18th volume of this Society's Journal, basing, as I had supposed, his conclusions on well-established facts, had placed its length at 105 miles, and its summit level at 495 feet; but Capt. Allen, R.N., has since shown† that we are altogether ignorant both of the altitude

* The Isthmus of Suez appears at the southern extremity to constitute the trough or hollow which at one time formed the basin of the upper part of the Red Sea. Here it is walled in on both sides by mountain lands, which rise into loftier regions towards the peninsula, and into rounded hills of soft limestone in the direction of Cairo. It is with the level plain alone we are at present concerned: this was first carefully surveyed by the French engineers in 1799, and the error was then committed of supposing the level of the Red Sea 30 feet above that of the Mediterranean. Although its suitableness for canal purposes had frequently been discussed, and it had been examined by Linant and other European engineers resident in Egypt, fifty years elapsed before the mistake of the French was discovered, when Mr. Stephenson made his survey in 1848. The distance by the shortest line from the Mediterranean to the Red Sea is 75 miles; the length of the canal proposed by the French 92 miles. From the high-water mark at Suez to the bed of the bitter lakes, a distance of 13½ miles, the ground is almost even; it is covered with shells and sea-gravel, and rises from 3 to 12 feet above the highest tide. Here a depression, averaging about 16 feet, commences and extends for a distance of 27 miles; the surface of the bitter lakes themselves, which appear fragments of the Mediterranean or Red Sea lowered by evaporation, being 54 feet. From this to the Mediterranean the ground is low and marshy, abounding in pools of salt water. Over the whole of this tract the shells are identical with those now found in the Red Sea, which was probably here united with the Mediterranean much within the historic period. The question of its practicability for a canal was, until 1850, argued under two assumed difficulties, which have now both vanished—the navigation of the Red Sea before the introduction of steamers, and the difference of the levels of the two seas. The French engineers considered a canal perfectly practicable, and estimated the expense at 700,000*l.*; and Mr. Maclaren, who first presented us with their views in an English dress, concurs with them in opinion. Linant and Henderson agree as to the practicability, but double the charge. Capt. Vetch considers the canal will cost 2,500,000*l.* Capt. Glascock and Mr. Galway regarded it as wholly impracticable. Col. Chesney, M. Prony, M. Michel Chevalier, consider the canal practicable in a country where labour was cheap, and no physical difficulties existed. It seems singular that any doubt should be suffered to remain on a question of such supreme importance. The introduction of screw-steamers would permit the voyage to be made in one vessel from Europe to India; the distance between the two seas being calculated at 20 hours with a speed of no more than 5 miles an hour. At present, coal, which must be carried on camels' backs across the desert, costs 10*l.* a ton at Suez; ships being thereby compelled to carry the bulk of their coal along with them from Aden and back, to their very great inconvenience.

See Mr. Maclaren's paper, Edin. Phil. Journ., 1825; various pamphlets published in 1842 and 1843; the Reports of the Society of Civil Engineers for 1850-51, Miss Fanny Corbaux' Letters in the Athenæum, 1851-52; Captain Newbold's visit to the Bitter Lakes; Journal of the Royal Asiatic Society, London, 1846.

† Trans. of the Royal Geographical Society, 1853, vol. 23, p. 166.

and position of its water-shed. We do not profess to know anything of its geology, or the age of its upheaval. The islands in the Red Sea doubtless afford abundant evidence of these various changes of level; but, with the exception of the volcano of Gibel-Teer, and of those described by Ehrenberg, in the neighbourhood of Ras-Mahommed, scarcely one of them has been examined or described in modern times. The "Two Brothers," in lat. 26° 20′ N., long. 34° 45′ E., are set down in the chart as coral islands, about 60 feet above the level of the sea. The sea immediately around them sinks at once to 50 fathoms. The Red Sea, around its whole circuit, is walled in by vast masses of mountain, which, down to Judda, in 21° 30′ N. latitude, approach close to its shores. On the African side, down to the 16th parallel, isolated hills alone skirt its borders; the higher ranges, 40 or 50 miles off, are seldom seen at sea; and on the opposite shore, between the same parallels, the land slopes gently in towards the interior of Arabia. The rocks chiefly consist of nummulite limestone—a portion of the vast band so admirably described by Sir Roderick Murchison, as stretching all the way, in one unbroken line, from the Bay of Biscay to the shores of Aracan, for nearly one-third of the circuit of the globe. From the parallel 16 to 12 the mountains on both shores and the islands in the middle of the Red Sea are volcanic. Gibel-Teer, in lat. 15° 30′, is still smoking, as it has been since 1774, when visited by Bruce, by whom it is set down as 500 feet in elevation. Dr. Kirk makes it 300 feet; the surveyors place it at 900: so little do we know of a volcano passed by our steamers at least four times every month. A violent eruption, of short continuance, took place in one of the Zugar islands, lat. 15°, in 1846, which was fortunately seen from different points of view by steamers passing in opposite directions, but it has never since been visited. A range of hills, above 14 miles from the shore, to which it is nearly parallel, is laid down in the chart as volcanic on the African side, with a similar range of greater magnitude and of the same character, extending from lat. 12° to lat. 15° 30′ on the Arabian coast. Dr. Kirk describes these as extending for about 300 miles to the westward; so that this vast volcanic field, which has scarcely been so much as noticed by geologists, occupies probably an area of above 10,000 square miles, without interruption; and is perhaps the third or fourth in point of extent on the surface of the globe. The only one of all its volcanoes with which we are somewhat acquainted is that of Aden, in the crater of which our troops are quartered. It has been so often described that it is not necessary here to refer to it, further than to state that it has clearly been submerged and elevated again from the waters, since the latest period of its activity. Up to the altitude of 500 feet it is thickly strewed with sea-shells mixed with scoriæ and volcanic

ashes; and in the bottom of the crater and all around the margins of the peninsula are masses of shells and gravel, the same as now prevail in the sea around, and exactly similar to those on the raised beaches of India and of Suez.

Note by Captain Haines.—The latitude of the Straits of Babelmandeb I do not think correct. I found soundings all the way across just outside the Red Sea; greatest depth 198 fathoms.

There are, no doubt, many reefs in existence not yet discovered: I reported one in April last, upon which an Arab ship struck.

The height of the water within the Red Sea depends upon the seasons; and after strong N.N.W. winds the shoals in the north part are dry in many places: even the shoals in the centre are influenced in the same way. The Durable Shoal can be landed on *at times*.

In January and February it more frequently blows strong from S.S.E. up the sea in the lower part, and the contrary from N.N.W. in June, July, and August. —*S. B. H.*

VIII.—*Extract of a Letter from Captain Spratt, R.N., on Crete.*

Communicated by Colonel LEAKE, F.R.G.S.

Read March 13, 1854.

I MADE an interesting discovery in the western part of the island, viz., that it has been subject to a series of elevations, amounting to the maximum of 24 feet 6 inches, which occurs near Pœkilassos and Suia. In the middle of the island, at Messara, the Fair Havens, and Megalo Kastro, there is none. The eastern end of the island has dipped a little. The upheaving is towards the western end. I had observed it to be about 7 feet in Suda Bay many years ago; but supposed it to be of a time prior to history, although there was a freshness in the markings which might have induced me to suspect they were of a more recent date. When at Kissamo, I observed that the ancient mole was remarkably high out of the water, and the port almost choked by sand. But the latter is so common an occurrence that it did not open my eyes, although the height of the naked unhewn rocks which formed the mole ought to have done so. On going to Phalasarna I looked for its ancient port, mentioned by Scylax, and in the Stadiasmus as the Emporium; but I could find no artificial work in the sea. There is, however, a long ledge of rocks, or rather an islet which lies off it, helping to form a natural but not an artificial harbour. This satisfied me in part, till, on examining the ruins, I saw in the plain a square place, enclosed by walls and towers, more massive and solid than those of the city. Pashley describes them without having been sensible of their purpose. I was instantly impressed, for several reasons,

that here was the ancient or artificial port, although full 200 yards from the sea and nearly 20 feet above it. My first idea was, that the ancients had the means of hauling their vessels into it as a dry dock; but at last the coast elevation was remembered, and on measuring the sea marks at its upper level here, I found that the bed of this ancient port is now 3 or 4 feet below that level; so that I had only to imagine the coast again let down 22 feet 6 inches, the amount it has been elevated here and at Grabusa, when the sea would immediately flow into the ancient port, and float any small craft within it. Geologically the recognition of this ancient port has another interest; it establishes the recent origin of this remarkable upheaving of the western end of Crete, which, however, is not surprising, as elsewhere ancient harbours have been lifted into the air, rocks have become islets, and maritime cities or buildings placed many yards from the shore. These facts will enable me to reconcile in some instances the ancient geography with the modern, and thus to verify points otherwise very difficult. For example, Suia is noticed in the Stadiasmus as a town with a *good* port (πόλις ἐπὶ καὶ λιμένα καλὸν ἔχει), and as following next to Pœkilassos, its position is easily recognized. There are so few of the ports of Crete so described in the Stadiasmus, that I naturally looked for a well-sheltered harbour. Pashley says nothing about it, and to look at the locality, few would hope to find a port. A straight and steep shingle beach, off which there is *no anchorage*, stretches across the mouth of the valley of Suia, and beyond the points of the hills on either side. These *points*, however, were sea-cliffs, formerly rising out of the beach, to about the height of 23 feet; and on them the old sea level is shown distinctly by the appearance of the rock, as well as by a line of cylindrical holes, the cells of boring sea-shells, in some of which the shells still remain. Pashley speaks of the town and ruins of Suia as lying on the E. side of the torrent or valley, but takes no notice of the western side, where a little plain within a long ridge of ruined buildings, and nearly 300 yards long and 60 or 70 broad, runs parallel to the shore. This was undoubtedly the tongue of land which sheltered the port lying behind it. The position of the port itself is indicated by a hollow or flat depression of the plain, which depression would even now be overflowed by the sea, if the island was again let down to its old level. Hence it seems evident that this great elevation of the coast must be looked upon as subsequent to the existence of these ancient cities, and subsequent, therefore, to the decline of the Roman Empire.

IX. — *Discovery of the North-West Passage.* By Commander R. M'Clure, of H.M.S. 'Investigator' (*Gold Medallist*).

Communicated by Sir George Back, R.N.

Read November 14, 1854.

It will be remembered that among the many ships fitted out by her Majesty's Government expressly for service in the Polar Sea were the Enterprise and Investigator. Nothing that ingenuity could devise or experience suggest was omitted in order to fortify them against collision with the ice. They were equipped with a warm-air apparatus, had a large supply of extra stores, and were furnished with provisions for three years. The first was commanded by Captain Collinson, C.B., and the second by Commander Robert M'Clure; and they were ordered to proceed with all possible dispatch to Behring Strait, so as to arrive at the edge of the ice before the 1st of August. They were to bear in mind that the object of the expedition was to obtain intelligence, and to render assistance to Sir John Franklin and his companions, and not for the purposes of geographical or scientific research.

Furthermore, it was thought

"unnecessary to give you more detailed instructions which might possibly embarrass you, in a service of this description; and we have therefore only to repeat our perfect reliance in your judgment and resolution, both in doing all that is possible to relieve the missing ships and in withdrawing in time when you come to the painful conclusion that your efforts are unavailing."

The Enterprise and Investigator left Plymouth on the 20th of January, 1850; and a short trial in the rate of sailing soon convinced Commander M'Clure of the inferiority of his ship, which would consequently be left far astern in the long race before them. A week had scarcely passed when they separated in a gale of wind, and did not again meet till the Investigator arrived at the Straits of Magellan, where the Enterprise had been eight days. Having been towed through by her Majesty's ship Gorgon, the same result took place in the fresh start, and on reaching Honolulu, five days later than her consort, Commander M'Clure had the mortification to hear that Captain Collinson only that very morning had sailed for the North, though not without leaving full instructions for his guidance, to proceed to Cape Lisburne, and, in the event of not meeting at that rendezvous, Commander M'Clure was desired to act entirely on his own judgment, —

"which," he adds, "was the most satisfactory direction he could have left me."

Having completed his stock of provisions for three years, calculated, however, to suffice for four, he left Wahoa on July the 4th. He was aware that his commanding officer intended to attain to 170° E. longitude, and 30° N. latitude, before shaping his course up Behring Strait. To pursue the same route would only throw him further astern; and having accidentally gleaned the possibility of passing through the Aleutian group, or Fox Islands, he resolved, with a full knowledge of the risk, to accomplish it:—

"I made," he remarks, "a straight course from Wahoa, which I believe is not usual, but I was obliged to attempt something desperate."

Adding, "perhaps I may be under the influence of some lucky planet," which many more might have thought, had they been equally favoured; for, being under a great press of canvas, "not a studding-sail was taken in between the latitudes of 17° S. and 69° N." In fact, when his persevering commander was struggling against baffling winds near the western end of the Aleutian chain, on July 29th, M'Clure was in Kotzebue Sound:—

"It is my intention," says Captain Collinson, Sept. 13th, 1850, "to proceed

again to the north, and remain in the most eligible position for affording assistance to the Investigator, which vessel having been favoured with a surprising passage from the Sandwich Islands, was fallen in with by the Herald on the 31st July off Point Hope, and again on the 5th August by the Plover in lat. 70° 44′ N., and long. 159° 52′ W., when she was standing to the north under a press of sail, and in all probability reached the vicinity of Point Barrow fifteen days previous to the Enterprise, when Captain M'Clure, having the whole season before him, and animated with the determination so vividly expressed in his letter to Captain Kellett, has most likely taken the in-shore route, and I hope before this period reached Cape Bathurst, &c."

The Investigator had now gained the edge of the ice about the date prescribed in the Admiralty instructions, and with characteristic energy her commander proposed to push through the first favourable opening leading to the eastward, with a view of getting to the N. of Banks' Land, but avoiding by every possible means being drawn into the bight "to the S.E., near Boothia," which he naturally concluded would be thoroughly explored by the expedition at that time employed under Captain Austin.

His object being defined, it seemed indifferent whether his ship was forced through the pack or made a more circuitous course to arrive at a position sufficiently north, whence a choice of direction might be taken through one or more of the large channels already known to exist, and thus spread the sphere of exploration in search of the Erebus and Terror to the utmost possibility.

In our present state of uncertainty respecting the whereabouts of the Enterprise* it is quite imaginable that Captain Collinson may have been actuated by a similar idea; and in the event of impediments of that insurmountable description conjectured by some to exist, it is devoutly to be wished that his sense of prudence will induce him to bear up for the American coast, and follow the track of his predecessor.†

"As for looking for winter quarters," says M'Clure, "it is a question that would not in the least affect my movements. so thoroughly am I convinced that a great part of the navigable season is lost by being fearful of wintering in the pack; so, wherever my onward course is stopped, there is my winter-quarters."

Deeply impressed with the risks and uncertainties before him, he exclaims:

"In the event of losing my vessel through the endeavour to carry out to the utmost their Lordships' instructions, the end to be obtained will, I hope, justify the sacrifice. I have reflected on every contingency—my every exertion shall be cheerfully given—the result I leave to the great Disposer of events."

On August the 2nd, in lat. 72° 1′ N., long. 166° 12′ W., the Investigator stood into the loose ice, which soon becoming close and heavy, with no prospect of easing out, and a failing breeze, she was worked along its edge in soundings of about 25 fathoms, mud; hundreds of walruses were lying thickly huddled together on the ice, "like sheep in a fold."

For three days, until the 5th, the thick and misty weather cleared a little, and the drifting ship, steadied by a breeze, shaped a course for Wainwright Inlet, with the intention of getting between the pack and the shore: a bold measure, and fraught with danger, since the former was low and shelving, and a sudden change of wind might at any moment drive the latter against it, to the ruin of all hope.

A flat and apparently shingly beach was soon descried 2 miles off, when the weather again became quickly overcast, and obliged those on board to resort to the soundings, which varied from 14 to 73 fathoms; and in this manner, without observing the land, the Investigator rounded Point Barrow.

* Intelligence of the safe return of the Enterprise has since been received.

† Captain Collinson passed the winter of 1851 in lat. 71° 35′ N., and long. 117° 39′ W. Sailed again about the end of August, 1852, with the intention of getting to the eastward through Dolphin and Union Strait.

The ice being sufficiently loose and practicable for sailing, Commander M'Clure steered eastward, direct for Banks' Land; but the gleam of expectation thus encouraged was but too soon dissipated. On the 6th August the mist rolled away, and exposed a heavy and impenetrable pack, extending from S.E. round by the N. to S.W., that effectually barred further progress. It was in lat. 71° 35′ N., and long. 155° 12′ W.

Not a moment was lost in hauling to the wind; and though the ice passed through looked close and white, and by no means improved by showers of rain and dusky weather, which prevailed through the night, yet, by carrying a press of sail, and striking unavoidably against rock-like masses of ice, rendering the navigation extremely critical, the ship was extricated when,—on the 7th in the afternoon, an open space of clear water was seen from the "crow's-nest."

It was now calm enough to use the boats, and, accompanied with songs and cheers, the crew commenced towing the ship; and after 6 hours' laborious work, they reached perfectly clear water in Smith Bay.

A light air enabled them to get to Point Drew on the 8th, when Mr. Court, accompanied by Mr. Miertsching, landed, to erect a cairn, and secrete a notice of their transactions. Three Esquimaux, who had evidently watched them, approached with some timidity, and after raising their hands three times over their heads, in sign of friendship, and saluting our countrymen by "rubbing of noses," they gave them much useful information; the most gratifying being the important fact of "an open passage along the coast, from three to five miles off;" and "that the heavy ice very seldom came in or never left the land further than at present."

There were 10 tents, and they held communication with a party who trade at the Russian Fur Company's post. They had never seen a ship, which they called "a fast-moving island." M'Clure remarks: "They appear to be a simple, kind people; very poor, very filthy, and to us looking exceedingly wretched."

They had seen Pullen's boats pass last year. It was ascertained that many of the Esquimaux seen had frequently gone "from the Coppermine river to Point Barrow" (?), but "could afford no information of the missing expedition."

Off Point Pitt the ship took the ground without injury.

"In crossing Harrison Bay the influence of the Colvile River was perceptible from 12 to 14 miles, the surface of the water being of a dirty mud colour, and scarcely salt."

August 11.—Abundance of drift-wood was seen on Jones Island; and one of the Esquimaux had a gun, with "Barnett, 1840," on the lock.

Much difficulty was encountered in worming a zigzag course among the thick ice—often grounded, and sometimes affected by temporary currents caused by the motion of floes. And on the 14th, after having escaped many dangerous banks, the Investigator ran on a shoal 8 miles N. of Yarborough Inlet. She was obliged to be lightened, and unfortunately upset one of the boats, in which 11 casks of salt meat had been deposited.

Scarcely had they escaped from this accident when the ice set down from the northward, in such quantity as to cut off all advance, and for two days little was done beyond anchoring, weighing, and warping, even for the apparently trifling advantage of gaining two cables' length. Such wearisome work makes M'Clure exclaim, "The navigation along this part of the coast is very dangerous, the sand-banks being low and numerous."

Lat. 70° 30′ N., and long. 148° 4′ W.

Still encountering heavy ice, and often retracing their way, on the 21st August they arrived at the Pelly islands, off, and not far from the mouth of the M'Kenzie River. At the distance of 40 miles the soundings did not

exceed 3¾ fathoms, while the influence of the river stream prevailed full 10 miles further N., where the colour was similar to that of the Thames at Woolwich—was slightly brackish, with a temperature of 39°: the sea-water, 4 hours previously, being 28°.

August 24.—Some huts, tenanted by Esquimaux, were visited near Point Warren. They seemed to be a barbarous set, who disclaimed all communication with the posts of the Hudson's Bay Company, on the ground that "water" was supplied to the Indians which killed them, and that they preferred trading with those near the River Colvile. With their immediate neighbours they were at enmity, and were speedily left to the enjoyment of their morose isolation.

It may be remarked, that since leaving Point Barrow, where several whales were seen, not one had made its appearance until about this time, when two or three large ones showed themselves in only 6 fathoms water.

This was within sight of Cape Bathurst, where a tribe of 300 Esquimaux had assembled for the fishing season. Their demeanour contrasted strongly with the former, for they were friendly, and took charge of despatches to be forwarded to the Admiralty. They had seen Sir John Richardson's party last year; and altogether made a favourable impression on M'Clure.

On *September* 1, they left the American coast, with a thorough conviction,

"That neither the ships nor any of the crews of Sir John Franklin's expedition have ever reached its shores."

Commander M'Clure describes

"The whole of the coasts as shallow, but, with the lead, may be safely navigated, the soundings being very regular. The shoals terminate about 30 miles E. of Yarborough Inlet, and water varying in breadth from 1 mile to 40 may be calculated upon along shore between the beginning of August and the 10th of September. It is more or less encumbered with ice according to the winds, which we found prevailed from N.E. to E.S.E."

The obstructions from heavy ice became annoying, and every expedient was resorted to in order to clear them.

Whales grew numerous near Franklin Bay, and an occasional bear was perceived; but all these, though interesting for the moment, yielded in importance to the gratifying appearance of high land looming in a N.E. direction, which, on nearing, was conjectured to be upwards of 1000 feet high, and was subsequently ascertained to form the S. part of Banks' Land. It was taken possession of under the name of Baring Island, and a signal-post with a notice was left in lat. 71° 8′ N., and long. 122° 48′ W.

This was M'Clure's first discovery, and was further enhanced by the joyous sight of open water "for the distance of full 40 miles to the eastward."

Continuing to work the ship along the shore in variable soundings, "from nine to seventy-six fathoms"—"dark mud, yellow clay, and fine white sand"—they continued to grope their way through fog and mist, till a partial clearance exposed, within 15 miles, some fresh land, diversified by "remarkable peaks," and "some snow-covered lofty mountains." It was called Prince Albert Land, and is in lat. 72° 1′ N., and long. 119° 25′ W. It is continuous with Wollaston and Victoria Land, extending north to lat. 73° 21′ N., and long. 112° 48′ W.

October 10*th.*—They passed two singular "rocky islets," named after H.R.H. the Princess Royal, and the wind being fair and the water tolerably clear from ice,

"all the studding-sails were set with the hope of reaching Barrow Strait, only distant about 70 miles."

The usual uncertainty of Polar navigation befell them, and their sanguine hopes were shortly destroyed by drifting masses whirling against the ship,

which was arrested and at the same time "lifted considerably" by the junction of two floes:—

"Since the 11th of last month we have been drifting in the pack—narrowly escaped destruction several times—received many severe 'nips,' and after *listing* the ship over 34°, we were on the 17th firmly frozen in (lat. 72° 50′ N., long. 117° 55′ W.) for nine long months."

Exploring parties were dispatched in different directions, and on the 26th Barrow Strait was discovered in lat. 73° 30′ N. and long. 114° 14′ W., which, exclaims M'Clure, "establishes the existence of a N.W. passage."

It was not before July 14, 1851, that the Investigator was released from her icy fetters, and then her sails were only twice used, drifting at other times in the pack.

Finding every attempt to force a passage into Barrow Strait without avail, M'Clure determined on rounding the S. point of Baring Island, with a view of sailing along its western coast, and so gain an entrance into Barrow Strait by its northern extremity.

It would only be a repetition of arduous trials, skilfully met and successfully surmounted—trials, it may be said, rarely if ever surpassed in the chronology of Polar navigation, and requiring professional experience of no ordinary amount to bear up against—trials, in short, like some others of Arctic notoriety, only overcome by a more powerful aid than any derived from mere human agency—were the daily escapes of the Investigator to be faithfully followed. Thus on the 29th of August:—

"The ship was in great danger of being crushed or driven on shore by the ice coming with heavy pressure from the Polar Sea; driving her along within 100 yards of the land for half a mile, heeling her 15°, and raising her bodily 1 foot 8 inches."

Again—

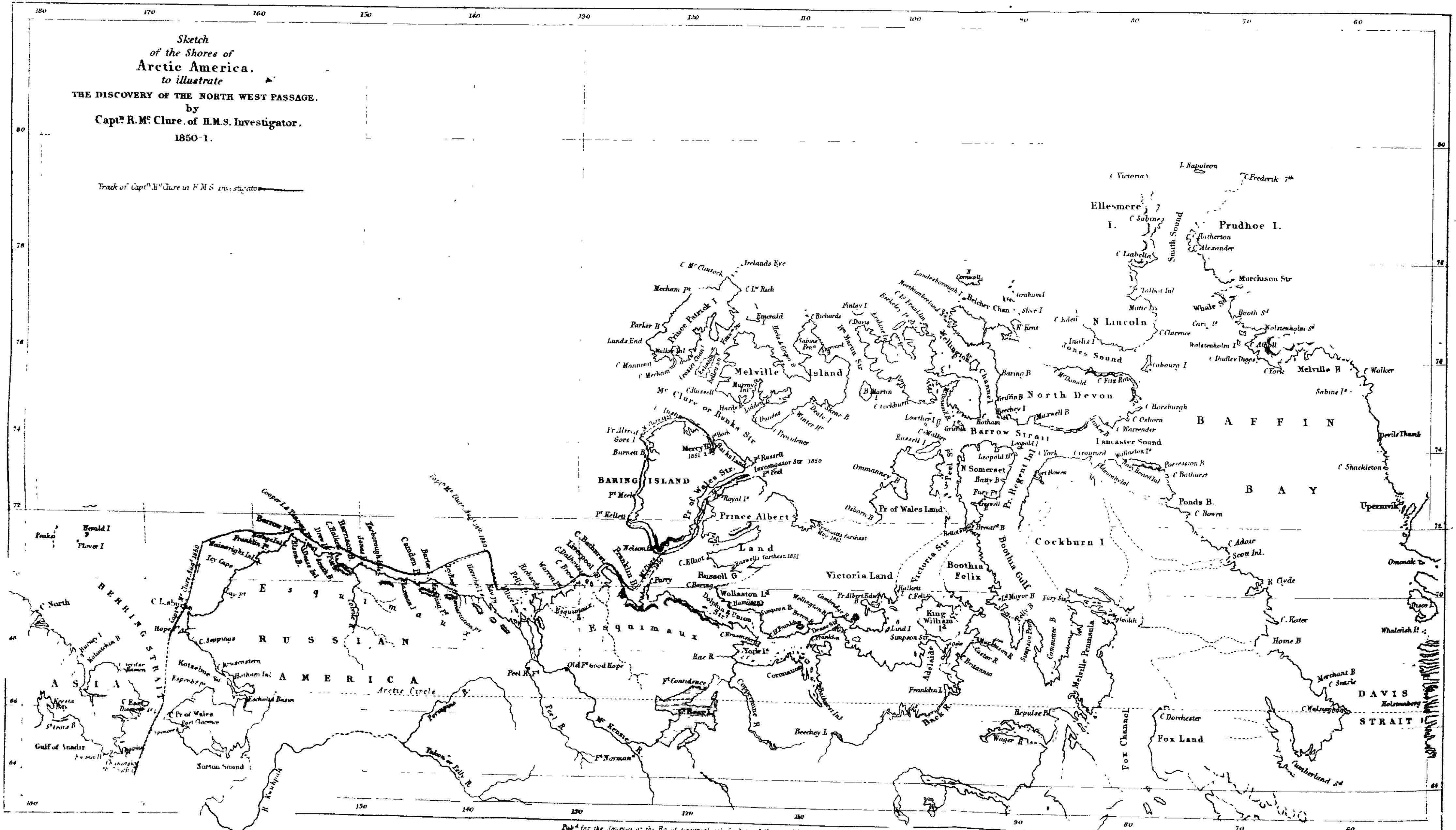
"A heavy grind, which shook every mast and caused beams and decks to complain as she trembled to the violence of the shock, plainly indicated that the struggle would be short. At this moment the stream cable was carried away and several anchors drew, &c."—"I had made up my mind that in a few minutes she would be on the beach, but, as it was sloping, conceived she might still prove an asylum for the winter, and possibly be again got afloat, while, should she be crushed between those large grounded pieces, she must inevitably go down in 10 fathoms, which would be certain destruction to all. A merciful Providence interposed."

And so they went on, and on the 23rd of September ran upon a mud bank, "having 6 feet water under the bow, and 30 feet astern." The cheerless appearance of Barrow Strait, white with ice, and huge masses drifting down on them from the N., allowed little choice of action, and it required no deliberation to accept gratefully the commodious harbour on the S. side of the shoal on which they had grounded. Into it they gladly sailed, and selecting a spot securely sheltered by a projecting reef from the intruding sea-ice, they anchored in 4 fathoms water, and the same night were frozen fast. Not without feelings of deep thankfulness was it called the "Bay of Mercy." It is in lat. 74° 6′ N. and long. 117° 54′ W., from whence, according to the last accounts, the Investigator had not moved.

It is remarkable that, in 1851, they had only "five entire days" in which the sails could be used, while in 1850 about three weeks were occupied in reaching Baring Island from the W.

Also, on the 24th of May, 1851, Mr. Winniett was at his farthest eastern position, and on the 23rd of May, 1851, Lieut. Osborne had got to his farthest western point—the interval between their relative extremes being inconsiderable.

Finally, a favourable wind for moving the ice might have brought the In-



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John Arrowsmith

vestigator through the only barrier that stopped her progress, and it is certainly a great triumph to geographical research that what is called the "*North-West Passage*" should have been discovered by Commander R. M'Clure and his gallant companions.

GEO. BACK.

NOTE.—Captain M'Clure and his crew left the Investigator on the 3rd June, 1853, and repaired on board the Resolute, Captain Kellett, which ship failed in getting farther than about twenty-five miles S.E. of Byam Martin Island, where she wintered; and was ultimately deserted in April, 1854, by the order of Sir Edward Belcher. Captain M'Clure finally reached England in the Phœnix steamer, Captain Inglefield, in September, 1854.

X.—*Report of a Canoe Expedition along the East Coast of Vancouver Island.* By JAMES DOUGLAS, Esq., Governor.

Communicated by the COLONIAL OFFICE. With Note on Queen Charlotte Islands.

Read February 28, 1853.

SIR, *Fort Victoria, Aug.* 27, 1852.

SINCE I had last the honour of addressing you on the 22nd instant, I have carried out the project, which I have long entertained, of a canoe expedition through the Canal de Arro, and along the E. coast of Vancouver Island, for the purpose of examining the country, and of communicating with the native tribes who inhabit that part of the colony; and I will now concisely state the result of my observations in the course of that journey.

2. In our passage through the Canal de Arro we were struck with the extreme incorrectness of the maps of Vancouver Island. The line of coast is well delineated, and could be traced upon our maps as far as the promontory named Cowichin Head; but from that point all resemblance to the coast ceases: the multitude of islands forming the Arro Archipelago, which extend as far as, and terminate at, Cala Descanso, being laid down as an integral portion of Vancouver Island: whereas the true line of coast runs from 15 to 20 miles W. of its position as laid down on our maps; the intermediate space being occupied by islands, and channels of various breadths, generally navigable, but probably inconvenient for sailing vessels on account of the strong currents and frequent calms which occur in these narrow waters. A correct survey of these channels will remove the difficulties that would at present be experienced by sailing vessels navigating those straits; and should Her Majesty's Government at any time direct surveys to be made in this quarter, I think the Arro Archipelago will be found to have peculiar claims to their attention, as there is a prospect of its soon becoming the channel of a very important trade.

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3. On our route through the Canal de Arro we touched at the Cowichin river, which falls into that canal about 20 miles N. of Cowichin Head, and derives its name from the tribe of Indians which inhabits the neighbouring country. They live in several villages, each having a distinct chief, or headman, who cannot be said to rule the community which acknowledges his supremacy, as there is no code of laws, nor do the chiefs possess the power or means of maintaining a regular government; but their personal influence is nevertheless very great with their followers. The Cowichins are a warlike people, mustering about 500 fighting-men, among a population of about 2100 souls.

They were extremely friendly and hospitable to our party, and gave us much information of the interior, which, by their report, appears to be well watered and abounding in extensive tracts of arable land.

The Cowichin rises in a lake, within a few hours' journey of the salt-water arm of Nitinat (Barclay Sound), on the W. coast of Vancouver Island, and is navigable for canoes to its source. These Indians partially cultivate the alluvial islands near the mouth of the river, where we saw many large and well-kept fields of potatoes in a very flourishing state, and a number of fine cucumbers, which had been raised in the open air without any particular care.

4. About 10 miles N. of the Cowichin the Chemanis river enters the Canal de Arro. It is altogether a smaller stream than the former, and is navigable but a short distance from the coast. It is inhabited by a branch of the Cowichin tribe, whom we did not see.

5. As we proceeded N. from the Cowichin a complete change was observed in the physical character of the country, the primitive and transition rocks of the Victoria District being replaced by the sandstone formations; in some places falling with a gentle slope, in others presenting precipitous cliffs towards the sea.

6. The promontory of Cala Descanso is the northern point of the Arro Archipelago; beyond which is the Inlet of Wentuhuysen, to which point my attention was particularly attracted through a report of *coal* having been seen by the Indians in that vicinity. These people are called Nanainio, and speak nearly the same language, but have not the reputation of being either so numerous or warlike as the Cowichin tribe.

We entered into immediate communication, and found them very friendly, and disposed to give every information we desired in regard to all matters concerning their own affairs and the country which they inhabit.

They live chiefly by fishing, and also grow large quantities of potatoes in fields which they have brought into cultivation earn

their villages. These are built chiefly on a river named Nanaimo, which falls into the inlet, and is navigable for canoes to the distance of 40 miles from the sea-coast. Food is cheap and abundant, and we were plentifully supplied with fresh salmon and excellent potatoes during our stay there.

7. The reports concerning the existence of *coal* in that place were, I rejoice to say, not unfounded; as the Indians pointed out *three beds* cropping out in different parts of the inlet; and they also reported that *several other* beds occurred on the coast and in the interior of the country, which we did not see. One of those beds measured 57½ inches in depth, of clean coal; and it was impossible to repress a feeling of exultation in beholding so huge a mass of mineral wealth, so singularly brought to light by the hand of nature, as if for the purpose of inviting human enterprise, at a time when coal is a great desideratum in the Pacific;* and the discovery can hardly fail to be of signal advantage to the colony. The two other seams which we examined were about ¼ of a mile distant from the former, and measured respectively 3 inches and 20 inches in depth, and are valuable chiefly as indicating the direction of the beds.

There is every reason to believe, from the appearance of the country and its geological phenomena, that Vancouver Island, about Wentuhuysen Inlet, is *one vast coal-field:* and, if that conjecture be correct, the progress of the colony will be rapid and prosperous, notwithstanding the many adverse circumstances which have hitherto retarded the development of its resources.

8. That consideration induces me to offer a few remarks on the navigation of the coast between Victoria and Wentuhuysen Inlet. The shortest and most direct route between those points is through the Canal de Arro, a part of the coast of which little is known, and, judging from the maps in my possession, has never been correctly surveyed. Merchant vessels are therefore deterred from taking that route, and follow the circuitous channel explored by Vancouver in the year 1795, which greatly prolongs the voyage, making the difference of nearly a week, in point of time, on a short run of 140 miles.

It is therefore of the very greatest importance to the trade of this colony that the Canal de Arro should be explored and a correct survey prepared as soon as possible, showing the soundings, shoals, and anchorages where ships may bring-to in calms, or during the continuance of adverse winds; and I beg most earnestly to recommend that measure to your consideration, especially as Her Majesty's Government would thereby render an essential service not only to this colony, but to the general interests of trade and navigation.

* Coal has been quoted at San Francisco at seventeen dollars per ton.—ED.

9. Our excursion did not extend beyond the Inlet of Wentuhuysen, from whence we commenced our return to Victoria, after distributing small presents to the chiefs of the various tribes, with which they appeared highly satisfied.

10. In the course of that journey we observed traces of ironstone on several parts of the coast; and we also procured a rich specimen of copper ore, found in a distant part of Vancouver Island, which will be hereafter examined.

The Hudson Bay Company's schooner 'Cadborough' lately visited the coal district in Wentuhuysen Inlet, and succeeded in procuring, with the assistance of Indians, about 50 tons of coal *in one day*. The harbour is safe and accessible to vessels of any class, and the coal is within two cables' length of the anchorage; so that every circumstance connected with this valuable discovery is suggestive of success.

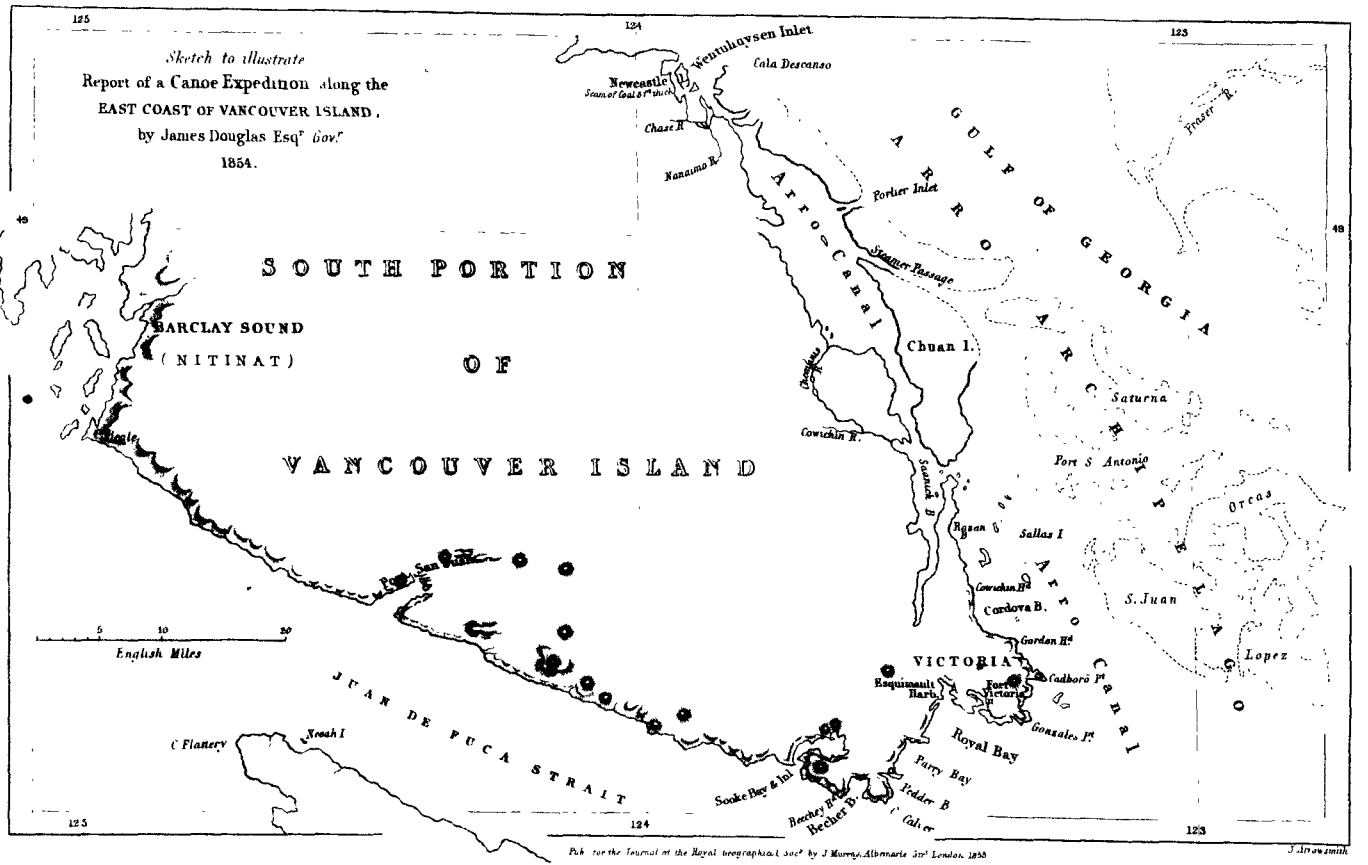
11. The Hudson Bay Company have also sent a small body of miners to examine the coal beds, and to commence immediate operations there.

12. Her Majesty's ship 'Thetis' arrived at Esquimault on the 22nd instant, direct from Queen Charlotte Islands; and, I believe, Captain Kupar has orders from the Commander-in-chief to remain on the coast till the month of January next, chiefly with the view of guarding the ports of Queen Charlotte Islands. The gold diggings in that quarter have not been productive this season, which has not, however, altered the general opinion entertained as to its wealth in the precious metals—the adventurers ascribing their late want of success simply to the circumstance of the true beds not having been discovered.

Fine specimens of lead and copper ore have also been procured on Queen Charlotte Islands, which, in a commercial view, gives it an additional value.

NOTE.—The discovery of gold in this part of Her Britannic Majesty's dominions was made by Captain Rooney, who commanded the schooner 'Susan Sturge,' * belonging to Messrs. Gray and Easterby, merchants at San Francisco, and by whom he was instructed to go up to Queen Charlotte Islands, and explore and see what business could be done with those islands that would be advantageous to the trade of San Francisco; and in the early part of the year 1852 he sailed for these northern islands, and on arrival made several discoveries—one of which was that, instead of there being (as is laid down on the charts) one large island, a group of *three* islands were found. He also discovered and named Victoria Island, Elliott Isles, Wansey Isle, and laid down the various places named in the sketch annexed. Having entertained friendly intercourse with the natives, whom he found anxious to trade with him, he returned to San Francisco in the latter part of May, and, beside bringing a variety of matters and things relating to the commerce that might be opened

* This schooner has since been taken and plundered by the natives of these very islands on the 26th of September, 1852.—ED.



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J. Arrowsmith

with these islands, he had on board two sons of native chiefs, who came with him as a guarantee of good faith to parties wishing to trade with them. A specimen of the gold-bearing quartz from Una Point, Mitchell Harbour, in the middle island of the Queen Charlotte Islands, was also brought, which, from an assay made in London, yielded 6317 dwts. 4 grs. of gold to the ton of quartz. Small pieces of gold, varying in size from a grain of wheat to a pigeon's egg, fall out of the rock after blasting. Traces of silver have also been found in the rock.—ED.

XI.—*Official Report of the Proceedings of the Exploring Party under* Commander J. C. PREVOST, *of H.M.S. Virago, sent to cross the Isthmus of Darien.*

Communicated through SIR RODERICK I. MURCHISON.

Read April 24, 1854.

December 16*th*, 1853.—(Full Moon.) 8.0 P.M. Weighed and steamed from the anchorage of Taboga, near Panama, shaping a course to pass inside the Pearl Islands. 11. Sighted Pacheca, the northernmost of the Pearl Islands. Daylight, off the Farallon Ingles.

Saturday, 17*th*.—8 A.M. Entered the Gulf of San Miguel, steering mid-channel between Points Brava and Garachiné to avoid the Buey Shoal, which extends some distance S. of the former. The tide or current was strong against us; general soundings from 6 to 8 fathoms, which deepened as we approached Punta Patino. Passed through the Boca-Chica Passage at low-water spring-tides; lowest cast 7 fathoms. Entered the harbour of Darien, a magnificent sheet of water, and at 2.30 P.M. anchored in the mouth of the Savana River.

Sunday, 18*th*.—8.15 A.M. Discovered the ship dragging her anchor, let go small bower and got steam up; brought up outside the river in Darien Harbour with 48 fathoms on each anchor. 10.30. Low water. Weighed and proceeded up the river. In picking up a berth, the ship grounded on a soft mud-bank off the right side of the river Savana; laid out kedge, let go small bower, and waited for the tide to flow. 3 P.M. Ship floated, steamed to an anchorage in mid-channel, and moored with swivel, 36 fathoms on each anchor. We were shortly afterwards visited by the authorities from Chapigana, a village situated about 8 miles distant on the S. bank of the Tuyra, containing about 150 inhabitants. These persons, viz. the Gefe Politico and Governor of the province, Don Manuel Borbina, the Alcalde, and Messrs. Hossack and Nelson, Scotchmen, gave us every information in their power of the route we were about to take, and obtained for us all the native assistance we required.

Monday, 19*th*.—About noon a party in the cutter and gig, with a canoe for the Indians, left the ship fully armed and equipped, with 14 days' provisions.

The latitude and longitude of two principal points being given, viz., Fuerte del Principe, lat. 8° 34′ N.,* long. 77° 56′ W., and Port Escoces, lat. 8° 50′ N., long 77° 41′ W., I deemed it better to work out our route as a course and distance, and cut our road accordingly, rather than trust to the uncertainty of the published maps, which appear to differ materially from each other. The survey made by Mr. W. Haydon, acting

* The positions of these places are, according to Mr. Gisborne's recent survey (as laid down in his MS. map), also adopted in an Admiralty Chart, just published, Fuerte del Principe, lat. 8° 44′ N., long. 78° 8′ W., and Port Escoces, lat. 8° 51′ N., long. 77° 36½′ W.—ED.

second-master of this ship, shows the course followed by the boats as far as the islands "Fairfax" and "Eliza," which we reached at 3 P.M., and were joined by two more native guides (hunters) in a small canoe, who promised to accompany the expedition as carriers. Beyond this the Savana forms a reach about 3 miles long in a N.N.W. direction. Its western bank is entirely lost among small islets and other streams running into it, forming a long, shallow mud-bank, the channel being apparently on the eastern side, where, at half-tide, we found 5 fathoms. At 3·45 P.M. we were abreast of a point opening into a straight reach, and beyond it a conspicuous hill was visible, which our guides named Periaki, estimated by us at about 300 feet in height; farther than this there were no hills. Following this reach about 3 miles, the river suddenly narrowed to 60 yards, taking a sharp turn towards the N.E., bringing Periaki before us; thence the turns of the river became sharp and tortuous, our soundings giving only 1 fathom, and the banks consisting of mangrove-trees and swampy land. 5 P.M. Reached the mouth of the Lara, the Savana running N.N.W. about 30 yards wide, its turnings sharp and stream sluggish; about one mile above this, the eastern side began to assume banks, with large trees, the western side still swampy. 5·30 P.M. Abreast of Matumaganti, a small stream on the W. bank. A mile above this, our guide pointed out a spot on the same bank said to have been in former days the Spanish settlement of Fuerte del Principe; the absence of forest trees, and the presence of brush-wood and young shrubs, was the only indication we could perceive. A short distance beyond this, as the sun had gone down, we were glad to stop for the night at an old rancho on the western bank, the boats now only just afloat in the middle of the stream.

Tuesday, 20th.—Taking advantage of the flowing tide, we passed a small stream on the W. bank, by our guide called "La Villa." This was about a mile from our rancho; and half a mile higher up we were stopped by falls and rocks crossing the river diagonally in several places. We had now ascended the river about 22 miles from its mouth; the tide appears to flow as high as this point, but only for half an hour; this obliged me to land the party here, and unload the boats. In addition to a tent, a large rancho was provided on the E. bank of the river, and the stores and provisions were left in charge of Mr. Hornby, midshipman, with a perty officer and twelve men, all well armed. During this short detention I ascended the river, accompanied by Mr. Kennish, a volunteer, in a piragua, which had to be carried over the various falls abounding at this point, called by our canoemen Point Chepo, some Indians of that tribe having once settled there. Alternately walking along the banks and poling in the canoe, we ascended with some difficulty about 3 miles, when the river became so winding, shallow, and blocked up with fallen trees, &c., that we were obliged to return. We were told that in the month of July we could have ascended 2 days' journey until we reached its source. Its banks assumed a more perfect form, and the débris collected on the overhanging branches of the trees gave evident signs of the height and rapidity with which the stream runs during the floods of the rainy season. On my return to Rancho No. 1, I found all our party equipped and ready for a start, with the exception of the two native volunteers of the previous night; their hearts had failed them, and they remained behind with their countrymen, the huntsmen.

Mr. Kennish had orders to steer N.N.E., compass in hand, and myself and Mr. Inskip, acting-master, with small axes to mark the trees, the latter carrying also a compass to check Mr. Kennish. Lieut. Moore and Mr. Gordon, mate, measured the road. We left No. 1 Rancho about 2 P.M. on the 20th, and on

Wednesday, 21st, we were able to start early, cutting our way through the bush. Halted at a large cuipa-tree, upon which we cut "Virago," and commenced measuring with a line, one chain in length, which we continued

until we returned South again. Many monkeys were seen, and some shot: they made a savoury meal for our guides.

Not far from Virago tree we discovered the remains of a well, and near it several pieces of earthenware jars, &c., said by our Indian interpreter to be the work of some Indians. Encamped this night at Rancho No. 3, estimating our distance at nearly 3½ miles from the boats.

Thursday, 22*nd*.—At our first halt a native climbed a tree, whence he saw over the dense forest "a white space like a river, but no hills."

The largest water-course we crossed to-day, with but little water in it. All the guides, with Pedro (interpreter), exclaimed it was the Lara. Encamped at Rancho No. 4, having travelled over 219 chains, 2¾ miles, at 80 chains to the mile. While the rancho was being built I returned about three quarters of a mile to examine what I supposed to be a river we had passed on our left hand, but it proved only a small stream. The cutting this day was heavy. As yet we have seen neither snakes, tigers, nor any ferocious animals.

Friday, 23*rd*.—Our work did not commence as early as usual; the cutting was through thick underwood and stunted shrubs, which made it more difficult to get ahead. The supply of water was less plentiful. Soon after noon a tiger (jaguar) approached very close to us, but quickly made off. Two turkeys were shot. Tracks of the wild hog, and also of a large animal called the tapir, were seen near the streams.

Encamped for the night at No. 5 Rancho, having progressed 208 chains. From a tree level land was seen ahead, but no mountains.

Saturday, 24*th*.—We struck on a considerable river flowing S.E., and built our 6th Rancho on its other bank, making this day 249 chains. We here missed the fine leaves of the palm, which appears never to grow in wet, swampy land, but in its place is found another species, with thorns, by no means so useful. A fine deer passed close to me to-day, and many birds of beautiful plumage were seen. Pedro, our Indian interpreter, said Indians came up this river, for he saw bamboo-trees, &c., cut through, which otherwise would have obstructed the passage of a canoe.

Sunday, 25*th*.—The river we were encamped near, though at present containing but little water, is evidently a rapid stream when the freshes come down. Here we had the first intimation of being in the territory of the Indians of the interior, three shots during the day being distinctly heard to the north-westward, which our natives immediately said were fired by Indian hunters.

Monday, 26*th*.—Our road lay through low, swampy, unpleasant ground, as on the other side of the river, for about ½ mile, then over several streams to undulating ground, from 50 to 60 feet high, on which the wood was more open and breeze very pleasant, leaving higher ground sometimes on our left, at others on our right. On the slope of a pleasant hill we encamped for the night at No. 7 Rancho, having gone 185 chains. On the summit of this hill one of the officers climbed part of the way up a tree, and saw a similar hill N.N.E., so that we were crossing over a range of hills varying from 50 to 60 feet high, running in a N.N.E. direction; this being the highest land we have yet been on.

Tuesday, 27*th*.—Some rain fell during the night, but not sufficient to annoy us. Pioneers started first, as usual, passing over the same kind of undulating hilly ground for 36 chains, which brought us to a nice stream running to the eastward. Here we fell in with the certain tracks of Indians, for the first time, pronounced by Pedro to be the bare feet of men, a child or children, and a dog, both towards the E. and W.; the most recent towards the E. The trees were the finest this day I have yet seen, and well grown; the mahogany, fustic, caoutchouc, and the tree of which the natives make their canoes, most abundant. We met also the wild-lime, which quite perfumed the air; also several most brilliant flowers of the fuchsia kind. At the foot of the last of

the hills, 125 chains from our starting-place to-day, we came to the largest river we have yet seen, running pretty rapidly to the eastward, 2 feet deep. It had more water in it than at our 6th Rancho, though its bed was not near so deep. After crossing this, the ground became swampy, the road was soft, and the day far advanced, so that after crossing three other streams flowing eastward, the palm disappearing, and our way becoming more swampy as we proceeded, we determined not to attempt to cross it that night. After a slight examination we therefore retraced our steps to the first high ground, which was across the largest river; turning a short distance off the road, we selected a rising-ground, and, though nearly dark, by the united exertions of all hands, we soon had a rancho built, No. 8; distant from No. 7, 125 chains.

Wednesday, 28*th*.—George Julier and an officer ascended a tree this morning. From the summit of the hill, near our rancho, the former reported a mountain and a range of hills across our path, apparently about 6 miles off, with a few small risings of the ground between them and us. He also saw a gap in the range away to the right, bearing about E. The latter reports "hills running in a direction about W. by N. ½ N., and E. by S. ½ S." Those to the right of our N.N.E. course seemed the highest, and the nearest about 6 miles distant; those a-head about 8 miles; those to the left further off, and not so high; saw what he thought was a gap, bearing about N.; could not see the gap. Julier spoke of the foliage of the tree he was in, shutting out the view in that direction.

The pioneers started alone this morning, as it was thought most prudent to find a road through the swamp, before bringing up the provisions, &c. On we went, compass in hand, cheerfully retracing our steps of yesterday, in hopes of overcoming the difficulty we had met in the soft black swamp about ¾ of a mile distant. Steering the same course, N.N.E., we pushed through, sometimes knee-deep in water, at others nearly the same in black mud, but, in a swamp, with rather a hard bottom; this, together with the fact of trees growing in it, without brush or underwood, gave us hopes it would not continue.

Three hundred yards of this disagreeable travelling brought us at last to terra firma: the heavy cutting commenced, and we advanced on level ground, nearly ½ mile, when we once again found the palm and other dry-soil shrubs and trees: monkeys also began to chatter, and we, in high spirits, hastened on to reach the Cordilleras. The falling sun, however, reminded us it was time to rejoin our shipmates who were waiting anxiously at No. 8 Rancho. We arrived about five o'clock, having advanced our road about a mile beyond the swamp. This day we again fell in with the tracks of the Indians,—their marks cut on a tree, but not recent, apparently intended to mark a spot we called the Tiger's Den, an open space of about ½ an acre, thickly covered with a species of wild grass. This space we supposed had some time or other been cleared for the cultivation of maize or other Indian food. Here, too, we saw the clear sky for the first time since leaving the boats—11 days—so dense was the forest we had cut our way through.

Thursday, 29*th*.—Some were employed throwing a bridge across the river, improving the road, &c.; others measuring the height of the adjoining hill and tree whence Julier observed the surrounding country: while the remainder accompanied me to reconnoitre the banks of the river: following its course in a S.E. direction for about ¼ of a mile, we came upon a rancho. There were some marks of a canoe having ascended the river as high as this hut during the summer season; but only an Indian eye could detect them.

Mr. Inskip, with a party of our native guides, was this afternoon occupied in throwing bridges across the streams, and otherwise improving the road already cut before us.

Friday, 30*th*.—The pioneering party left early to continue our road-cutting; the remainder had directions to join us as soon as the petty-officer and his party

returned with provisions. Retracing our steps, we soon reached the point we had left off at on the 28th; from No. 8 to the swamp, 1¼ mile; distance across swamp, ¼ mile; length of road cut beyond, ½ mile. The nature of the forest became quite changed: instead of the small underwood, we came on almost impenetrable thickets of the prickly palm or aloe, rather more than 6 feet in height, through which we with great difficulty cut our way for ¾ of a mile. The total absence of all underwood, together with the thickly-spreading roots of large trees, and the rich nature of the soil, made one fancy that the whole of this belt of land had been once under cultivation. At last we came to a small gorge between two hills (that on our right about 30 feet high), through which ran a small mountain-stream, due N. This gave us all great joy, as we at once believed it to be the Caledonia. In its bed we found stones, the streams hitherto met being generally over a bed of soft clay. On the right-hand hill we encamped for the night, making our No. 9 Rancho distant from No. 8, 283 chains.

Saturday, 31*st*.—Started this morning as usual, the pioneers a-head, in high spirits, believing we had entered the Cordilleras, and that we should soon be rewarded with a sight of the sea, more anxiously looked for by us, than ever was the Pacific by Nuñez Balboa.

Having reached more undulating ground, we lost the prickly palm which had so delayed our progress, crossing two mountain-streams flowing W.N.W., which evidently joined that of yesterday, then ascending a hill, about 30 feet high, from whose summit, being partially clear of trees, we fancied we saw the sea. Descending the side of the hill covered with large stones, evidently washed by water, we came upon a noble river flowing swiftly towards the E.S.E., so suddenly that the foremost woodcutter almost fell into it; another certain proof of the density of this forest. This discovery, however, quite puzzled me: the size of the river, 100 feet broad, apparently too deep to ford even at this time of the year; the rapidity of its current, nearly 3 miles an hour; with its fine banks, plantations of bananas and plantains, were all certain signs of its being the Chuqunaque, which, by the Spanish charts and other public maps, we ought to have left some distance to the eastward, steering the course we had done from the Savana.

We pushed on towards the westward, along the banks of the river, to a more open space, distant 10 chains, where there was evidently a ford. Here we determined to build our 10th Rancho; but, being early in the day, we followed on another ½ of a mile, hoping to meet some huts or a village, but without success. We returned to our first halting-place on the river, and encamped for the night at No. 10.

Sunday, *January* 1*st*, 1854.—By measured distance we had advanced nearly 20 miles in a straight line from our point of starting on the Savana, near La Villa. If former reports are to be relied on, this must place us only a short distance from Port Escoces. Still, knowing the difficulties we had to contend with, I hesitated to give the order to go forward, until the return of a party sent in search of the Indians. To accomplish the examination of the country on the other side of the river, our pioneers crossed early by the ford, not more than 2 feet deep, cutting our way through a plantation of bananas and plantains, which were growing wild.

Crossing several steep but small quebradas and broken ground, cut up by small streams emptying themselves into the main river, we reached the foot of a hill about 80 feet high, covered with fine timber, over which we crossed; then a steep descent to a mountain-torrent or small river, flowing N.W., another tributary, and a very considerable one in the rainy season. Reaching the summit of another hill, about 120 feet high, the view became rather open and clear towards the N.W.; turned in that direction, and while resting sent our native guide, Maria, up a high tree on the brow of the hill. He reported a

distant view of the sea to the N.W., with hills on his right, and the river we had left in the morning winding its course from the westward, as far as he could see. In consequence of this report we altered our course to N.W.; descending steeply the other side of the hill we had just mounted; crossed several mountain-streams in the same direction, and reached a high point whence, from the highest tree, we discovered a river at its foot, with a rapid descent leading to it, and found it about 90 feet broad, flowing from N.N.E. to S.S.W., along a valley 105 chains distant from No. 10 Rancho.

The day being far advanced, we thought it prudent to retrace our steps, and reached No. 10 a little before sunset. Messrs. Inskip and Gordon had returned without having fallen in with Indians, having followed the course of the river 3½ miles, which they found to continue its north-westerly direction, varying but little in size, depth, and strength of current. Its banks were steep and precipitous, and at least 300 feet high.

From the nature of the country we had passed over this day it was agreed that each officer and man should carry his own four days' provisions, and that the remaining provisions, with all unnecessary clothing, stores, &c., should be left at No. 10 Rancho, as a depôt for the advancing party to fall back upon, in charge of an armed party.

Having made all necessary arrangements, and given my final instructions to the party to be left in charge of No. 10, we only waited for daylight to cross the river, hoping to see the Atlantic, and return in safety.

Monday, 2nd.—We left early, fifteen in number, including four native guides. We soon reached the beautiful river of yesterday, and followed its course for 80 chains, sometimes in its bed, about knee-deep in water, at others cutting our road along its banks, clothed with fine overhanging trees, until it became tortuous, winding away in a more westerly direction, when we ascended its eastern bank, and cut our road over several small hills with quebradas between them, through which ran a stream towards the main river. Striking this river again, we crossed it, flowing then more easterly. Here we came upon a rancho, being built on the W. bank. Some of the party declared they heard the axe at work, which ceased immediately we approached: 100 yards farther along, on the opposite bank, was another Indian hut, but apparently deserted; near it a tree almost chopped through, the marks very fresh. We observed also a curious hole, which appeared to us like a grave; but our native guides said it was made by the conejo or wild rabbit.

Continuing our N.N.E. course, we crossed over a high hill, and on our descent struck another river flowing to the N.W. Ascending then along a ridge for 25 chains, we encamped for the night at No. 11 Rancho.

Tuesday, 3rd.—The early part of this day we had climbing enough, crossing several deep ravines, whose steep and slippery sides caused many a tumble. We, however, cut our way through in a N.N.E. direction, and about noon reached the summit of a hill, estimated by us at 800 feet high. Even from here we could see nothing of the surrounding country, so dense was the forest, until George Julier mounted a high tree, when, on his right, or to the eastward, he saw a three-peaked mountain, very distant, and hills in our course not so distant. Not long after this, having descended considerably, we came to a river, flowing N. by W., which cheered us on, concluding it must eventually fall into the Atlantic. We crossed this, having travelled 144 chains from No. 11, and ascending gradually over high undulating ground, we came at last to a spot, whence there was so abrupt a descent, 45 chains from the last river, that we could almost see the surrounding country.

As sunset was fast approaching, and we were still some distance from water, we had to turn our attention to the selection of a spot for encamping. The descent into the valley beneath was too perpendicular to attempt, so we followed the ridge downwards 25 chains, which brought us to another river in

a most picturesque situation, flowing S.W. Here we built our 12th and last rancho. Total distance measured 26 miles and 14 chains from Rancho No. 1.

Wednesday, 4th.—Although finding ourselves in the centre of the Cordilleras, and, I believe, within a very few miles of the object of our search, yet having already exceeded the limit of my stay, it became my duty to rejoin the ship without delay — still feeling confident that, had time and our provisions allowed us, we should have eventually reached the Atlantic shores, and that easily, by following one of the several rivers or streams which appear to exist in this range of hills, forming certain passages to the sea.

We now retraced our steps to the river we had crossed yesterday flowing N. ¼ W., and leaving one half of the party there with directions to build a rancho for the night, if we did not return before 2 P.M., we pushed on, following its course to ascertain, as best we could, in what direction it ran; and when we came upon it again, a magnificent sight was before us. Precipitous rocks, causing a fall of at least 150 feet, in something less than ¼ of a mile, in which even at this season was a beautiful waterfall and several deep pools, finding their way through, not over, the masses of rock around them; the richly clothed hills, verdant with the finest forest trees; and, above all, the perfect solitude, perhaps never before broken by civilized man, made us feel ourselves already repaid for our labours. Our guide thought it too precipitous to follow; so we ascended one of its overhanging hills, and from its summit commanded a view tolerably clear towards the S.W., over an apparently level country, but too distant to distinguish its true nature.

The passage which the river might take towards the N.E. was very indistinct. Descending from this point at a very sharp angle, we came again upon the river, flowing south-westerly, which we followed until it took a turn W.S.W., between hills rising very high on both its banks, when, finding it very difficult to proceed, we returned to the remainder of the party, feeling sure it did not run through the passage we had supposed it did the previous night. Many fine fish were seen in it, which Macao told us were only found near the sea-coast. Having plenty of daylight, we passed on to No. 11, which we found undisturbed, and the fire still burning.

Thursday, 5th.—Started off at early dawn, hoping to reach our depôt, No. 10 Rancho, in good time, to rest and enjoy a fresh and cooked meal, half allowance of pork with biscuit having been our mountain fare. Returned to Rancho No. 10 by our old road without meeting anything worthy of notice, except that in wading through the river as before, we missed our mark for crossing over the hills; and following the stream lower down, it gave evident signs of soon emptying itself into the main river.

We reached the river Chuqunaque, and crossed it by the same ford, when, arriving at the rancho, to my utter astonishment and dismay I found all the party gone, as well as all our provisions and stores; and there was every appearance of the hut having been ransacked. Our native guides searched in vain for traces of an Indian attack, or even of their footsteps. Rancho No. 9 was soon passed; and in Indian file we came to the swamp, and there plainly distinguished the marks of Indian feet. Still we were undisturbed, and had reached within ¼ of a mile of No. 8 Rancho, when, in taking a short turn in the road, to my horror I came suddenly upon the bodies of three of our shipmates, Thos. Hyde and James Perkins, R.M.A., and Henry Windsor, A.B., lying dead in the pathway.

At No. 8 Rancho we found the few stores and provisions left there untouched; the Indians had not advanced so far: still we were liable every moment to the same unseen attack, had such been their object. Our only resource appeared to me to push on to the boats by forced marches, taking every precaution as we went along to prevent a surprise. My fears for the

safety of those left at Rancho No. 1 were not allayed until we reached No. 6, where we found a day's provisions, letters from the ship, and a note saying a strong party had left that rancho only a few hours previous to our arrival. The moon lighted us to No. 5, where we arrived about 8 o'clock.

Friday, 6th.—As soon as we could distinguish the bushes we were on the march towards the boats, which we reached about 11 o'clock, and found all well.

Saturday, 7th.—About 2 A.M. we reached the ship, much refreshed in body, but sad in heart and spirits. So toilsome was our journey that we spent 15 days in performing a distance of little more than 26 miles, having to force our slow and laborious path through forests that seemed to stretch from the Pacific to the Atlantic shores. The trees, of stupendous size, were matted with creepers and parasitical vines, which hung in festoons from tree to tree, forming an almost impenetrable net-work, and obliging us to hew open a passage with our axes every step we advanced.

XII.—*Observations on the Territory of Burica, in the Province of Chiriqui, Isthmus of Panama.* By J. H. SMITH, Esq., of Panama, F.R.G.S.

Read May 8, 1854.

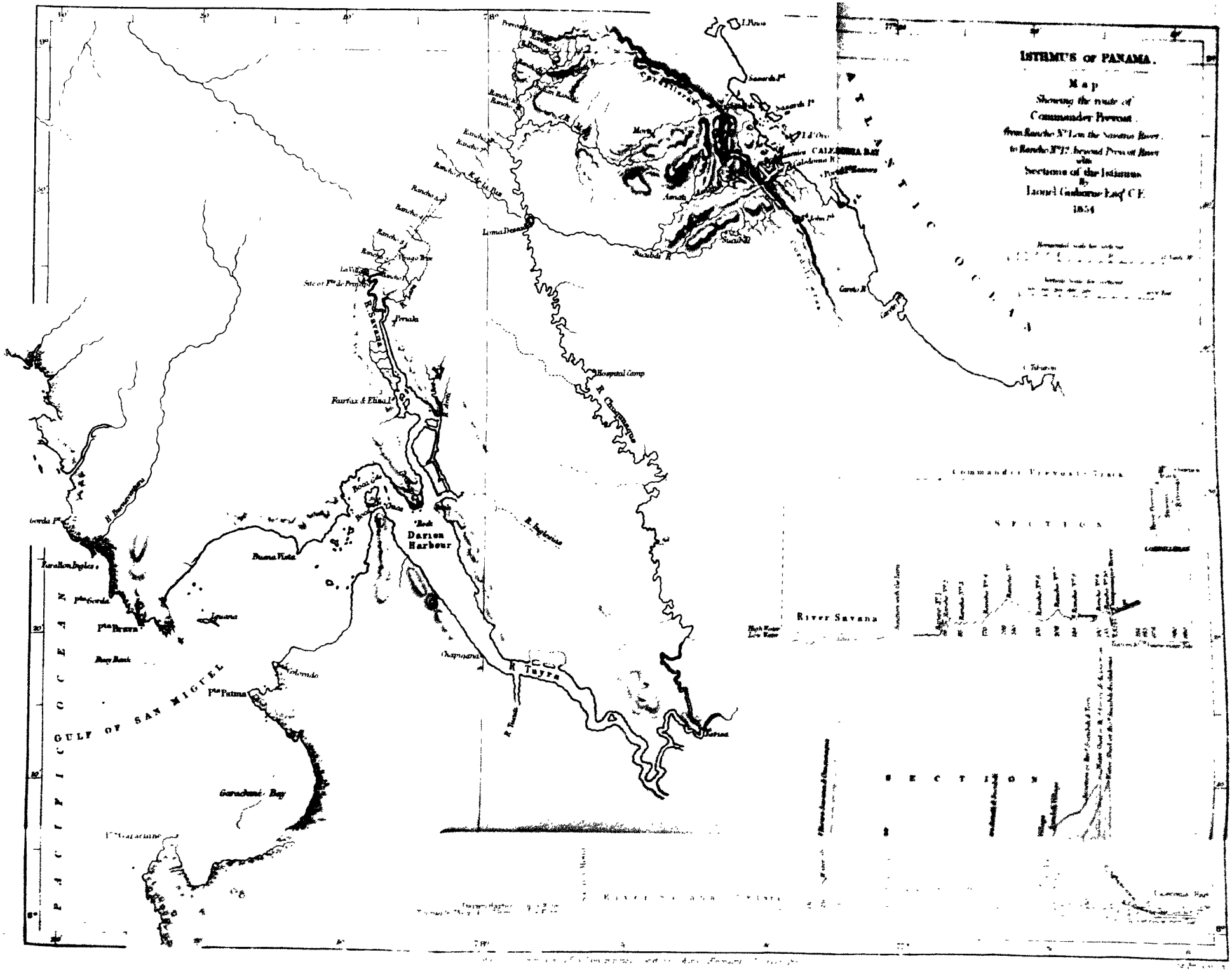
THE territory of Burica lies between the 8th and 9th degrees of N. latitude, and longitude 82° 50′ and 83° 10′ W., and has lately separated from the province of Veraguas. A part of the level country is densely covered with palms and various timbers, and its coast line has good harbours. According to a late treaty between the United States and New Granada, the former guarantees the sovereign integrity of the Isthmus, and the latter has abolished custom-houses, and admits, free of duty, all foreign imports with the exception of a small municipal tax.

The lands of Burica do not belong to the General Government, but exclusively to the province of Chiriqui, and are called "tierras indultadas," or exemption lands. The rest of the public domain is under the jurisdiction of the General Government, and known as the "tierras baldias," or unseated lands.

The Burica territory embraces an area of about 800,000 acres —mineral, arable, table, plain, forest, highlands, and sea-coast. It extends from the coasts of the Pacific to the summit of the northern Cordillera. The boundary on the E. is from the coast of Guanavano, including Punta Burica, thence along the Pacific round to the head waters of the Rio Claro, which run into the Golfo Dulce.

On the Guanavano coast are the three ports of Ensenada de Ladrillos, Charco, and Guanavano.

From Punta Burica along the coast is an extensive region of cocoa-nut trees, 21 to 25 miles in length, and it is calculated that there are more than a million of trees in full bearing all the year


ISTHMUS OF PANAMA.
Map
Shewing the route of
Commander Prevost
from Rancho N°1 on the Savanna River
to Rancho N°17 beyond Perico on River
with
Sections of the Isthmus
By
Lieut. Cockburn R.N. C.E.
1854
PACIFIC OCEAN
GULF OF SAN MIGUEL
Darien Harbour
Fairfax & Elma I.
Hospital Camp
R. Chucunaque
R. Tuyra
Garachiné Bay
Pta Patma
Pta Brava
Pta Garachiné
Commander Prevost's Track
SECTION
River Savana
SECTION

round. There are four Indian villages in the vicinity, whose population would avail themselves of work were cocoa-nut oil factories, &c., established. This section offers great inducements to agriculturists and miners; the soil is most fertile; two crops a year can be raised with ease. The general face of the country is very suitable for cultivation and grazing, and it is in close vicinity to the Panama market, the great depôt through which the Californian route passes.

The vegetable kingdom of this region is very rich, embracing the cocoa-nut, vegetable ivory, the cacao bean, plantain, coffee, cotton, sugar-cane, tobacco, indigo, Indian corn, and rice. There are also many plants yielding gums, resins, dyes, and medicinal articles, such as sarsaparilla, caoutchouc; also fruits and vegetables peculiar to the tropics, as well as the Irish potato and some European fruits and vegetables. From the palo de vaca, or cow-tree, the natives extract a substance resembling gutta-percha. The copaiba-tree grows abundantly, the oil of which is principally used to mix paint, in place of linseed. Caraña, or the Chiriqui incense, copal, acacia, tacamahaca, croton, castor, balsam of Peru, vanilla, tonquin bean, &c. are produced.

The dye-woods are very abundant; such as the Laurus persica (Aguacate), Brazil, Asafran (Carthamus tinctoria), cupana, arnotto, paraguatan, dragon's-blood, Angoli (Sesamum orientale), &c.

The physical aspect and mineralogical character of this territory are very varied, and there is reason to believe that exploration would not fail to discover auriferous and other minerals.

The mountains, after following a course from S.E. to N.W. as far as the volcano of Chiriqui, turn to the N., sending down towards Punta Burica a range of broken ridges and spurs of lower hills. Traditions speak of the auriferous richness of these lands. The aborigines never failed to leave valuable remains in their burial-places or "guacalis." This region contains a great number of such old graves, the burial-places of a once powerful tribe, not migratory. Many of these guacalis have been opened, and found to contain images of birds and beasts, and trinkets of gold.

The gold mine of Tissingal, which gave name to the adjacent coast of "Costa Rica," was one of the richest ever worked by the Spaniards. This mineral deposit was behind the volcano of Chiriqui and among the range of the spurs of the Cordillera, forming the northern limits of Burica. Not long since an Indian from the vicinity of the volcano came to the town of David (the capital of Chiriqui) and sold two lumps of gold, weighing a pound each. The celebrated mines of Estrella are familiar to readers of the early discoveries by the Spaniards. It is well known that

there existed gold mines in the vicinity of the Mosquito coast, which in former times extended as far as the Bay of Almirante and Lagoon of Chiriqui on the Atlantic. The Mosquito Indians, who were in continual warfare with those of the mountains and plains on the Pacific side, finally overthrew the latter, destroying their mines, the precise localities of which have been lost since then.

From these accounts it may be inferred that the gold found in the ancient graves must have been procured in the territory where those Indians dwelt. Gold has been found in the mountains, ravines, plains, and streams which run into the Pacific, particularly at Guanavano and Charco Azul. On the road from Costa Rica to this province an extensive quartz formation has been discovered at Las Breñas. It is a common occurrence for the Indians of Terrora to visit this spot to grind the rock and extract gold. Copper and zinc have been found, as well as coal (a superior lignite).

Climate.—Dr. M'Dowall, an old resident in this district, says, "The proximity of the Cordillera to the coast of the Atlantic, giving rise to continued rains and malaria, colonies could only be founded by great sacrifice of life; but when we cross the Cordillera, and reach the country sloping towards the Pacific, the scene is at once changed. The better air we breathe and the different scenery infuse a more healthy character than on the Atlantic side."

The dry season extends from December to May inclusive, when the wind blows steadily from the North; during this period no dews are formed, and one can sleep in the open air at night with impunity. The soil is so productive that six hours' labour will remunerate the wishes of the most sanguine.

The average temperature on the coast is 80° Fahr.; that of the highlands at the foot of the mountains 65°. A valuable trade might be opened in the item of "tasajo," jerked beef, at the foot of the Cordillera; the atmosphere being so pure and rarefied that cattle could be slaughtered and the meat kept sweet six to eight days without salting. The Panama railway and steam facilities on the coast will lead to markets far beyond the Isthmus.

BOLIVIA

Sketch of the Country between

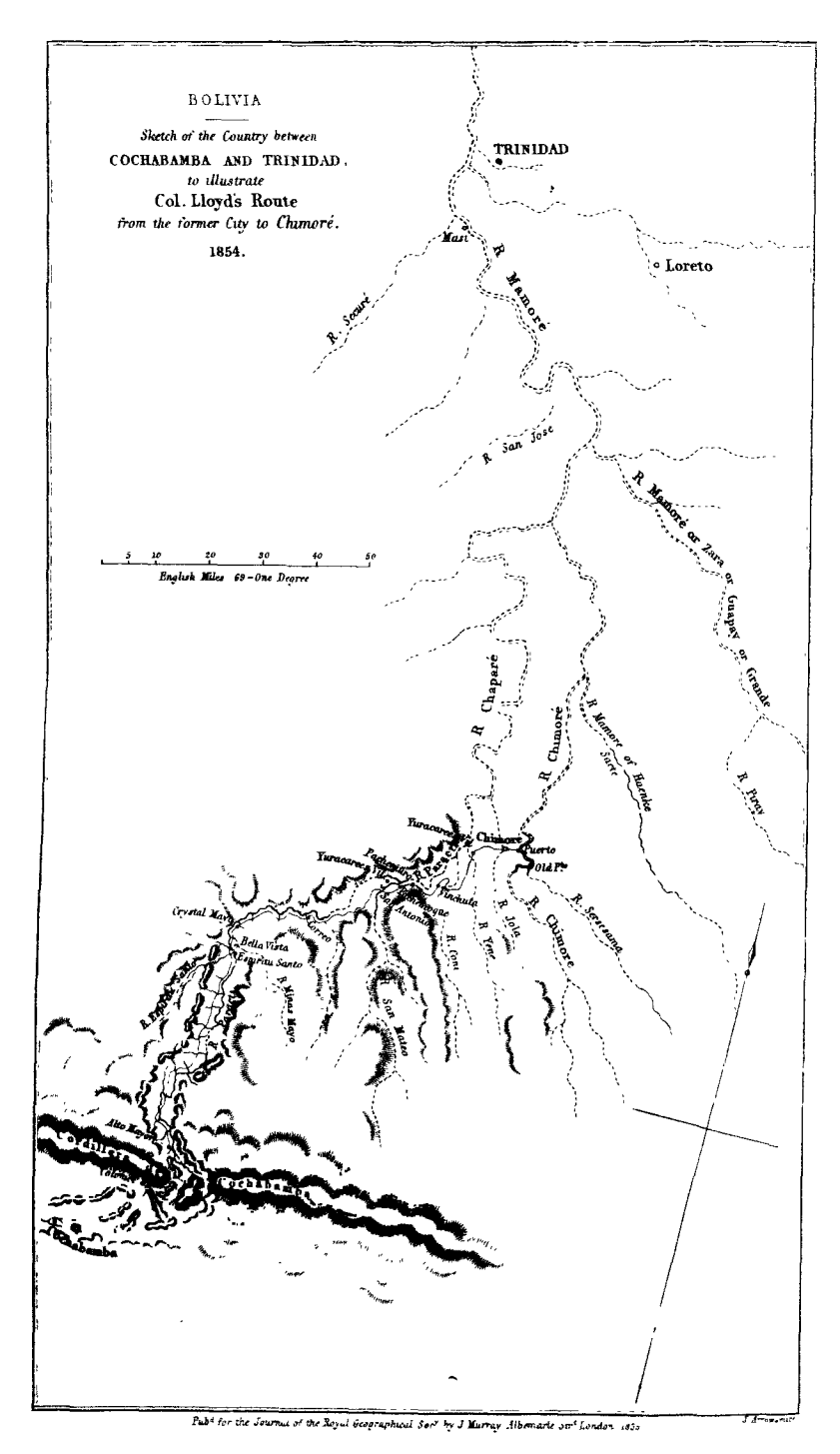
COCHABAMBA AND TRINIDAD,

to illustrate

Col. Lloyd's Route

from the former City to Chamoré.

1854.



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XIII.—*Report of a Journey across the Andes, between Cochabamba and Chimoré, to the Westward of the Traders' Route, with Remarks on the Proposed Communication between Bolivia and the Atlantic, viâ the Amazon.* By J. A. Lloyd, Esq., F.R.G.S., H.B.M. Chargé d'Affaires in Bolivia.

Communicated through the Foreign-Office.

Read April 10, 1854.

In giving the following account of my tour into the province of Moxos to examine some of the upper branches of the Madera, an affluent of the Amazon, it may be as well to state that my object in desiring to make this fatiguing journey during the height of the rainy season, was to satisfy myself as to the real advantages to Bolivian and European commerce of an overland communication from the plains to the eastward of the Andes, and thence by the tributaries supplying the Amazon down that river to the Atlantic.

Since the departure of Lieutenants Herndon and Gibbon, of the United States navy, from Bolivia, to descend the Amazon and its tributaries, and rumours of the mission of Sir Charles Hotham and Chevalier St. George to the La Plata, much excitement has arisen in Bolivia with regard to its importance and the anxious desire of European nations to open up trade with this republic.

From all the western parts of Bolivia, almost to the gates of the thriving city of Cochabamba, there is but one vast tract of mountain, valley, and great ravines, generally without a sign of useful vegetation, except in a few isolated spots or villages near the river beds.

From Cochabamba eastward, on the contrary, after passing a most dangerous mountain, called the 'Cuesta de Paltacueva,' or 'cavern of snow-storms'—and within some twenty leagues of Cochabamba—the entire pass being strewed with the bones of both men and beasts who have perished there on the way to the far interior, another high ridge of mountains is encountered. This ridge is perfectly bare and arid on the Cochabamba side, but is covered to the very summit, on the eastern, with the finest verdure and timber, which extends, increasing in intensity from thence to the country of the Yuracarees, and with hardly an interval away to the Brazilian Empire and the Atlantic Ocean.

It is remarkable to observe so perfectly defined a line of rich vegetation, of the deepest green, on one side of a mountain ridge, the other side of which displays nothing but total aridity. The atmosphere is still more curious. In the western heavens a bright glaring sun from an intensely blue sky parches everything; while,

standing on the eastern side of these mountains towards Brazils, from the zenith to the horizon is one dense dark mass of clouds.

The trade winds blowing with considerable force from the east, bring up large masses of clouds against the scarps of the wooded side of the mountains. They are seen absolutely to rebound and return back in an under current, almost at right angles. The few clouds that do succeed in passing this barrier almost immediately melt into fleecy scud, and a few hundred feet lower disappear altogether against the dry earth. In proportion as the forests increase in intensity and in the immense size of their stately trees, so the rivers increase and the healthiness of the climate rapidly alters.

Westward, excepting the malady called the Soroche, which is a most distressing and often dangerous oppression on the lungs, caused by the extreme rarefaction of the atmosphere in these great altitudes, hardly a disease, except catarrh and dropsy, is known; whereas but three or four days' journey in the forests from Cochabamba, tertian and complicated fevers become prevalent. At Espíritu Santo, at the junction of the river of that name with the river Paracti, on an estate where I had slept, named Bella Vista, the entire property and its vicinity had been abandoned in 1847 and 1848, on account of the mortality amongst the residents. Forty-two families residing on Bella Vista were nearly annihilated by tertian, and many estates were abandoned.

Espíritu Santo is enclosed on all sides by stupendous mountains clothed with the finest timber and palm trees of extraordinary height and symmetry. The inclinations on either side the rivers and innumerable streams have been cleared and planted with coca, a shrub resembling the tea plant, the leaf of which is chewed to an inordinate extent, combined with lime or an aluminous earth, by the Peruvian Indians and the Cholos. This isolated and pestilent district produces about 10,000 arrobas or 220 tons of this poisonous narcotic, on which is levied a duty of 2*s.* per quintal for repairing roads, where there is not a path but those trodden by mules or wild beasts.

The deadly pallor and unearthly appearance of the inhabitants of these regions evinces the extreme unhealthiness of the country. The diseases become more aggravated in proportion as the shores of the Amazon are approached.

From Espíritu Santo the last vestiges of civilized human life disappear. The track then lies alternately through swamps, violent torrents, and deep and rapid rivers, fringed to the very edge with almost impenetrable forest, or over the most rugged and precipitous mountain passes. The only passage through these is by a constant ascent and descent. In many places there is a treacherous soil or silt over which the trembling mules can

hardly be urged to advance ; although it is only a peculiar class of these animals that can withstand the fatigue and maintain their footing, but few travellers pass without losing some of their beasts, by falling over the precipitous banks of these passes. They are too well marked by the skeletons of those victims who have been destroyed and arrested in their descent by some sharp rock or tree.

Such is the description of route along or near the banks of the Paracti for three days, encamping at night in the forests. At this interval in the rainy season the abandoned Mission of San Antonio is reached on the banks of the San Mateo, a dangerous river about the size of the Thames at Hammersmith, but filled with rapids and whirlpools. Its waters abound with the finest fish, and its banks are infested by the anta or tapir, a few tigers, herds of peccari, or wild hog, and a species of small black bears. On the western side is a small settlement of the Yuracaree Indians, a fine and noble-looking race, of a light copper colour, remarkable for their unswerving honesty, but unhappily renowned for their cruelty to their female offspring, many of whom they destroy at their birth by burying them alive. These people, clothed only in a bark shirt, and simply armed with bows and arrows, exist entirely on fish, roots, and unripe plantains ; bread or grain of any description being unknown amongst them. Venomous insects, the large black ant, more than an inch in length, whose bite is almost as serious as that of a scorpion, immense mosquitos, sancudos, and rinchutas, an animal like a weevil, but with a long poisonous lance, and myriads of sand flies, keep these poor beings in a constant state of agony, scratching and tearing their flesh till the blood flows. Both men and women are scarred from head to feet. They are almost amphibious, remaining for hours in the water : their expertness in swimming and diving may be judged, when during the most violent torrents they fearlessly embark with a small piece of pithy wood, called a caballito, between their legs, and cross the stream through the most violent torrents and cataracts. This is the road to the province of Moxos and its capital, Trinidad, and to the point of embarkation, Chimoré. There is no other transport across this broad river for the traveller or his baggage but the unstable canoe made of the rind of a tree, or the more safe expedient of a Macintosh belt to the swimmer. Everything of baggage is spoiled. The mules are made to swim and take the chance of landing a mile or more below, from whence they are brought up to the traveller by a path only known to the Indians.

To avoid this perilous passage the native traders bound to Trinidad pass many days' journey to the East to Santa Cruz de la Sierra, and then descend the rivers Guapay or Zara into the Marmoré. Lieutenant Gibbon was detained 14 days on the

about that of the Thames at Westminster-bridge, but extending into very broad reaches studded with islands. The depth varied from 5 to 20 feet, except over the shallows and rapids, where there was occasionally but a foot of water, deepening directly into eddies and whirlpools of 25 feet. It is quite unnavigable until some leagues lower down, where it becomes a fine tranquil stream, with a depth of 22 to 26 feet.

The "embarcacion" is opposite this reach, and from hence all the traffic to Moxos is carried down; and large quantities of cacao, for chocolate, are brought up by the native traders in the summer, more particularly from June to October, and carried through the wretched roads already alluded to.

I have thus far described what I have seen; the remainder of my narrative is from information I believe to be authentic.

From Chimoré it is but a short distance to the confluence of the great rivers Piray and Zara, above Loretto, the place decreed to be a free port from the Amazon.

But although the river may become a fine and navigable stream, still as yet, for European commercial enterprise, it will be but of small avail, the current being so strong as to require 15, and sometimes 25 days, for the mail-canoe to reach Chimoré from Trinidad.

The advantages held out generally in regard to the facilities of communication with this portion of the continent by the Amazon and its tributaries have been, in my opinion, much overrated. As far as the land journey is concerned, my labours will give some idea of the danger, expense, and impediments to inland transport from any embarking-place.

Up to Trinidad, the capital of the Bolivian province of Moxos, there is no doubt that the Marmoré may be as available for inland navigation *during the dry season*, as the Madera, the Pará, or the Amazon. But the provinces in this vast district are flat and intertropical; and, for six, seven, or eight months in the year, the rains fall in such deluges that the low banks of the rivers, like the Nile and the Orinoco, overflow. The whole country, for thousands of square leagues, becomes one great lake, and the communications are kept up in canoes.

If navigation, under like circumstances, had been necessary in a rich European province, the bed of the river would be marked off by beacons; but in an extensive unpopulous waste like Bolivia it would be impracticable, for in that republic alone the territory extends 100 leagues in a direct line along the Marmoré.

The disembarkation and transport of any description of goods, for a large portion of the year, would be impracticable: everything, if landed, would be destroyed from the extreme humidity of the atmosphere. Besides these impediments to inland transport,

the rivers Madera and Pará present great obstacles to uninterrupted navigation. There are twenty-two very dangerous "cachuelas," or rapids. The experienced native pilots will conduct the traveller safely through, in very large canoes or embarcaciones; but hitherto all those bound up the river have had to be tracked a great distance overland. It is said that the most powerful American steamers could surmount these difficulties: but, at any rate, it could be only after a number of years' intercourse, the investment of large capital, and a certainty of commercial profits, that such appliances could be employed.

In conclusion I would beg to remark, that to arrive either at Peru or Bolivia, a water distance of some 2000 to 2500 miles at least would have to be traversed through an inhospitable country, and through a hot and pestilential climate. Unlike the Mississippi, where a change in the seasons purifies the atmosphere and invigorates the human frame, winter and summer are only varied by more or less rain in one or other of the intertropical zones. The air is almost darkened by insects, whose attacks render life nearly insupportable. The waters, even close up to Chimoré, swarm with large alligators; and the banks of the rivers are overrun by savage Indians, who seek every opportunity of injuring a stranger or a white man, whom they fear so much that the almost trackless paths known to them in the forest are rigidly kept secret.

In my journey to the interior from Cochabamba, I took with me a young Englishman, a naturalist born in Moxos, two servants of the country, the chief arriero (a trader with the Indians and Chimoré), and two muleteers. When I departed from Cochabamba I left the naturalist and the arriero dying of complicated tertiana; one of the servants, an Argentine negro, and the two arrieros, were laid up helpless with the same fever, and the remaining two were afterwards attacked.

Note 1.—Mr. Lloyd forwarded with his Memoir a sketch of the route he had followed, made on the principle of a military reconnaissance, the distances of objects being estimated by the eye, and the angular direction determined by a compass. Such reconnaissances have lately been undertaken by officers of the United States Engineers in various parts of America, and are without doubt most valuable illustrations of the narrative or journal of the explorer.—Ed.

Note 2.—In the fifth volume of the Journal of the Royal Geographical Society, at pages 70 and 90, will be found some further accounts of the upper affluents of the Madera, &c., with a map, to illustrate papers by Mr. Pentland and Sir Woodbine Parish. See also Lieutenants Herndon and Gibbon's late works.—Ed.

Note 3.—Information has since arrived of the death, by cholera, of this enterprising traveller, who had joined the expedition to the Crimea, previous to his proceeding to the Caucasus.—Ed.

XIV.—*Notice of a Caravan Journey from the East to the West Coast of Africa.*

Communicated by Vice-Consul BRAND, F.R.G.S., through the FOREIGN OFFICE.
With Remarks by Mr. W. D. COOLEY.

Read January 24, 1853.

ON the 3rd of April three Moors (Mohamedan Arabs) arrived at Benguela, accompanied by a caravan of forty carriers, who were conducting ivory and slaves to exchange for merchandise. These bold travellers, who have come from the coast of Zanzibar, crossed the African continent from E to W., and state that having got into the interior and bartered away in succession all the goods which they had provided, having exchanged them for the above articles, they then found it difficult to retrace their steps from the want of articles to trade with, and resolved on proceeding on their journey in the hopes of meeting with such articles as they had been told they would find farther inland in exchange for ivory. In the Catanga country they came in sight of the Major of Bihé, who was journeying to Benguela with his followers, and who, having persuaded them to accompany him, arrived here as above stated. Anxious to procure information respecting this interesting journey, I had an interview with the said Moors, and learned what follows:—

One of them, named Abdel, who had as a pilot frequented the coasts of India, being a native of Surat, and his parents of Muscat, said that entering into partnership with another Moor called Nassolo, they agreed to go to the island of Zanzibar, where the latter had a relative; they did so, and the three in company resolved on trading to the continent. For this purpose they went to Bocamoio, a native town on the mainland, opposite to Zanzibar, where white men are met with who can write, and who go there to trade. They there obtained carriers to take their goods, exchanging them in succession for ivory and slaves, till they arrived here, which they did only six months after their departure from the eastern coast, having during this period suffered some privations, and the loss of only three persons who died.

The places which they describe as having visited are the following:— From Bocamoio they went to the Giramo lands; then from Cuto they proceeded to Segora, where they traversed high mountains as far as Gogo. From this point to Mimbo they travelled fifteen days without meeting any habitations, and being in want of water, they afterwards went on to Garganta, and there took a guide, who conducted them to Muga, where the country abounds in cattle. They afterwards came to Nugigi, and here they were stopped by Lake Tanganna, and were forced to con-

struct a boat, in which they crossed the lake: this voyage took them a day and a night. They went on shore at Manguro, the inhabitants of which place are in the habit of pulling out their teeth. From this they proceeded to Casembe, where one of the Moors, a native of Muscat, by name Said Gerad, remained with two mulattoes to guard the ivory, which they left at this place, while the rest of the party went on to Catanga, where they had the good luck to meet with Major Coimbra's men, with whom they came to Cahava by the Macacoma road, along the course of the Leambege, which appears to be the Cambecis, which runs down to Quillemane. They passed through the towns of Cabita and Bunda, remarking that through the latter flows the river Lunguebundo, a tributary of the Leambege. From this place they proceeded to Luanza, Bihé, and Benguela, and they intend soon to return to their native land, following the same route.

In this city they lodged and traded with Senr. José Luiz da Silva Dianna, who treated them with the greatest kindness, and his example was followed by all the inhabitants, so that if it were not for the great difficulty of the journey, perhaps they might be induced to repeat it, together with some other speculators.

(Signed)

BERNARDINO FREIRE F. A. DE CASTRO.

Benguela, 13th April, 1852.

NOTE.—The arrival of the Arab traders at Benguela from Zanzibar was officially communicated by the governor of Benguela to his chief, the governor-general of the Portuguese province of Angola. The enlightened interest which those officers expressed appears worthy of the best days of Portuguese discovery; and the governor of Benguela was instructed to offer an official appointment, and to use every means in his power to induce Europeans to return overland to Zanzibar with the Arabs.—ED.

Remarks by Mr. Cooley.

An event, entitled to form an epoch in the history of geographical discovery, was announced in April (1852) in the Official Bulletin of Loanda, the capital of the Portuguese colony of Angola, namely, the arrival in Benguela of a caravan from Zanzibar, at the opposite side of the continent. Native emissaries have crossed more than once from the interior of Angola, on the one side, to the interior of the government of Mosambique on the other. But in this case the chiefs of the expedition (three in number) appear to have been Arabs or Sawâhili. one was a native of Surat, of Arab parentage, and a pilot by profession. Having met together in Zanzibar, and agreed to try their fortune on the mainland, they crossed over to

Bocamoio, where they hired carriers and completed their equipment.

In a tracing of that portion of the African coast, communicated to me by the late Mr. Robt. Newman Hunt, I find two villages named Bogamoio; one in lat. 5° 55′ S., about 20 miles N. of the Ruvu (more commonly called on the coast the Kingáni—*i. e.* Bar-river); the other at the mouth of that river, on its right or southern bank, in lat 6° 16′.

Leaving the coast, they went through the countries of the Giramo, Cuto, and Sagára, or, as they are written in my map, Zerámu, Ncutu, and Wasagára. The Zerámu occupy both banks of the Ruvu, in the lower part of its course, and are reputed a savage people. They probably include the Wadóa, who are said to be cannibals. The Wancútu possess the hills between the rivers Ruvu and Lufiji. The country of the Wasagára is annually inundated by several rivers, of which the Lufiji is the chief. In this country is the town of Maróra (*i. e.* trade), at which seem to converge all the roads to the interior. The road to Oha, in Monomoézi, continues hence along the left or northern bank of the river; but our travellers crossed to the southern side, and the next place named by them is

Gogo; the Gungo of my map, and the Gugu of Lieut. Hardy, who states that it is 45 days up the Lufiji. Immediately beyond Gungo the road led for 15 days through an uninhabited country. This desert tract evidently forms the ascent to the tableland of Monomoézi, and corresponds to the rugged and uninhabited tract between Usanga and Unangwéra (the frontier town of Monomoézi) on the other side of the river. On the S. side a transverse mountain-range runs parallel to the general course of the river, and is said to abound in salt and iron. The desert being crossed, the travellers reached

Mimbo, the Uímbu of my map, which has probably the true reading of the name. Scarcity of water was experienced on the way from Uímbu to

Garganta. This name does not appear to me to be genuine; perhaps it ought to be Caganda.

Muga, the next place mentioned, abounds in cattle. After this comes

Nugígi. This name is evidently the Uyiyi of my map; but it ought probably to be written Ujíji (the liquid j of the Sawâhili), in which case it would be pronounced Uyíyi or Unjíji. This is the capital of one of the independent kingdoms of Monomoézi, and which probably comprehends Uímbu. In Ujíji the travellers built a boat, in which they crossed Lake Tanganna (Tangána) in a day and night. The natural day's voyage may be assumed to be 30 miles. The Arabs probably sailed: the natives, paddling in a canoe, and sleeping at night on a stone (as Nasib expressed it), that is, on a rocky islet, take 3 days to cross the lake. The appellation here given to the lake or nyassa, is doubtless descriptive of the active traffic carried on between its opposite shores. The verb cu-tangána is the reciprocal (and, perhaps, also a frequentative) form of cu-tanga, to reckon or pay in cloth or money, which seems to have given a name, as I have elsewhere observed ('Inner Afr.' pp. 36 and 62), to the Movíza country, or principal channel of trade. The travellers found on the western shores of the lake the Mangúro, who extract their upper front teeth and file the rest to points. These people were formerly among the intruders into the Movíza territory ('Inner Afr.' p. 144), whither they had come probably from the country S. of Iáo, being allied in race with the Makúa, whom they resemble in the custom of filing the teeth.

From the country of the Mangúro, on the western shore of the lake, the travellers proceeded to the Casembe (Cazembe), at whose town three of the party remained to collect ivory, while the rest continued their journey to the western coast. They first went to

Catanga, and thence to

Caháva, where, they inform us, is the road to the Macacoma (Maçacoma, the Musocuma of my map), in whose country is the river Luambezi or Cambecis (Camb. or Zambéze). The names Tanga, Catanga, and Tangána, all occur in the accounts of the Portuguese expeditions given in the 'Annaes Marítimos,' but without any clue to the position of the countries or places so entitled. I believe Tanga to be the country of the Movíza, which is now N. of the New Zambéze, as will be explained lower down; Catanga to be the particular or individual form of the same name, and to mean the town or chief's

residence; Tangana, the reciprocal form, is applied, as we have seen, to a portion of the lake. Caháva is probably the same frontier town which in Lacerda's time was ruled by Chipáco, and which accordingly bears in my map the latter name.

Of Cabita, the next place occurring in the route, we know nothing.

Bunda, however, which follows, is plainly indicated in the accounts of the route from Benguela to Loval (Lobale) ('Inner Afr.' p. 21). The Bamaponda of Livingston's map are evidently the people of this district. Here, according to our travellers, is the great river Langebongo, which flows into the Luambegi. It is to be feared, however, that they confounded the large rivers flowing from Bunda in opposite directions, viz., the Lulúa and the Seshéke. The Bachuana say that the Langebongo flows to the N.N.W.; and their testimony in such a matter is obviously preponderant. (See 'Inner Afr.' p. 138.) By the Langebongo they mean the Lulúa, traced down the Lueña from Bunda, through the territory of Quiboque; but the Langebongo of our travellers, flowing into the Luambegi, appears to be the Seshéke itself, the course of which is to the S.S.E. In Bunda the travellers met with a commercial agent of the Portuguese, whom they accompanied to

Bíhé, a state under Portuguese control; and thence to

St. Felipe de Benguela, where they arrived in the beginning of April. The whole journey across is said to have been completed in 6 months.

This narrative affords a very striking confirmation of my map. With respect to the bearing and latitude of Monomoézi, and of the details of the interior generally, I had but little guidance; and yet it appears that the route of rapid travellers from Zanzibar to Maróra, and thence by Gungo, Uímbu, and Ujíji, to the Cazembe, when traced on my map, forms nearly *a straight line*, whence it may be inferred that the map is tolerably correct. The Cazembe's town (Lucenda) being but 7 good marches (90 or 100 miles) from Moiro Achinto (10° 20′ 35″ S.), where Lacerda observed, both for longitude and latitude, cannot be far wrong. This route entered Monomoézi (at Uímbu), in about lat. 8° S. Uranga, also in Monomoézi, and further S., probably extends to the 10th parallel.

The tribes on the western side of the lake are represented on the map as they stood at the time of Lacerda's expedition (1798-9); but from Major Gamitto, who accompanied the expedition of 1831, we learn that previous to that date the Auemba had dispossessed the Movíza ('Inner Afr.' p. 144); and now the narrative before us seems to prove that the migration of the Auemba was followed, as might be expected, by a general movement of the tribes. The Musocuma went southwards into the country abandoned by their neighbours, as far, perhaps, as the banks of the New Zambéze. The Movíza probably sought refuge N. of that river, in the dominions of their ally the Cazembe,* while the Mangúro, intruders from the S.E. into the Movíza country, were driven furthest northward in the general circulation, and took the place of the Musocuma on the shores of the lake. The names Tanga and Catanga, I suppose to have moved with the Movíza to the northern side of the New Zambéze. It seems certain that our travellers went southwards from the Cazembe to Catanga and Caháva. Had they gone westwards, they must have passed through Lobale. Besides, it was from Cahava that the road went to the Musocuma on the Luambegi (Zambéze). This circuit in their route may be ascribed to the extensive marshes S.W. of Lucenda. ('Inner Afr.' p. 41.)

It would appear that the migrations and circular movement of tribes just described have opened the direct communication between the Cazembe's domi-

* This conjecture is now confirmed by Gamitto's narrative of the Portuguese expedition.

nions and the shores of the lake. In Lacerda's time the Cazembe was completely cut off from the lake, and his commerce with the eastern coast made a great circuit southwards; but his former enemies on that side have now given place to subjects or allies. (See 'Inner Afr.' pp. 41, 143.) The Auemba thought to possess themselves of the trade by seizing its ordinary channels; but it is possible that they caught at a shadow, and that the people whom they dispossessed, flying to the N., took their industry with them. Intelligence of this revolution had probably reached the eastern coast, or at least Maróra, and decided the route of our travellers. Perhaps the novelty of their course in a direct line to the Cazembe, may be inferred also from the circumstance that they had to build themselves a boat to cross the lake.

Nothing can be more explicit and unequivocal than the account received by Lacerda from the Musocuma and others respecting the course of the New Zambéze. He was assured that this river flows into the Murisuro, near which stands the Cazembe's town. And, again, the lagoon crossed by Manoel Caetano Pereira ('Inner Afr.' p. 30) was said to be connected on the one side with the New Zambéze, and on the other with the Luapula. Many considerations might be urged in favour of this view; but after all, it is at least possible that Lacerda's information was erroneous; and that the New Zambéze, the Luambegi of the Musocuma, and perhaps of the Balobale also ('Inner Afr.' p. 20), is the Liambae of the Bachuana and a branch of the Seshéke. In the popular and current geography of a rude people, the great river is sure to swallow all the less rivers. Now, the great river of the Mucomango tribes is the Murisuro (river or lake, literally water); that of the Balobale and others in the W., the Luambege or Zambéze. The celebrity of the name has no doubt a tendency to multiply the rivers bearing it. Even if the Luapula and New Zambéze be perfectly distinct rivers, yet flowing, as they certainly do, through a low, marshy region, their connection by means of transverse canals is not impossible.

The reason assigned for the journey of the Mohammedan adventurers to the eastern coast is, that by the time they reached the Cazembe they had expended all their goods, or all that was suited for ordinary traffic, and so having no means of returning, they advanced. This is manifestly a very lame story. As they left some of their party in Lucenda to collect ivory, it is obvious that they intended to return eastwards. There exists no natural foundation for a trade between the opposite coasts which have the same wants and like productions. The truth seems to be, that they laid out their goods in the purchase of slaves, the best market for whom they found to be on the W. coast. The ivory, on the other hand, was destined for the E. coast, the chief market for it being in India and China. This conjecture is strengthened by the fact of their not taking the direct road westward by the Lualaba; for in the mountainous district (Lobale), about that river, provisions are all imported and extremely dear, and consequently that district, which is the best for the general merchant who obtains in it the cash of the country, salt and copper, must be avoided by the slavedealers.

It may be presumed that with a little effort it is not yet too late to obtain a full account of the whole journey to Benguela and back again, from the Surat Arab, either in Zanzibar or India. He may be supposed to have staid a couple of months in Benguela. On his return to Lucenda, two or three months would be little enough to spend in higgling for ivory. His descent from the Lake to the sea-coast with the caravan would take four months at the least. Altogether it is highly improbable that his return from Benguela to Zanzibar could be effected in less than a year. Every trade in Africa is slow and dilatory except the slave-trade, which moves rapidly, because so long as a slave is kept he must be fed. Now, a letter to Zanzibar, addressed to Capt. Hamerton, or to Mohammed bin Khamís (secretary and interpreter to his

highness Seid Sáid) might arrive there in six weeks, if sent through Aden by any one who could reckon on the co-operation of Capt. Haines.*

NOTE.—The practicability of crossing the African continent from Zanzibar to the West Coast was taken up by an Associate of this Society, Mr. W. Bollaert, in 1834, and a plan of an expedition to be conducted by him was brought before the Royal Geographical Society in 1837. The plan was approved, instructions were drawn up by Mr. Cooley, and the Society offered to subscribe towards the expenses; but, in the absence of public aid, a sufficient sum could not be raised, and the project was ultimately abandoned.—ED.

XV.—*Extracts from the Letters of an Hungarian Traveller in Central Africa.*

Communicated by Dr. H. RÓNAY. With Remarks by Mr. W. D. COOLEY.

Read February 14, 1853.

LADISLAUS MAGYAR, born at Szabadka in Hungary, after having studied in the naval school at Fiume, went to sea in 1844, and served subsequently as lieutenant in the navy of the State of La Plata.

In 1847 he proceeded to the African kingdom Kalabari, whose king, named Trudodati-Dalabér-Almuazor, after two years gave him permission to travel in Central Africa.

On the 15th of January, 1849, he left Benguela, and after a troublesome journey of some days in a dry and desolate country, with scarcely any vegetation except the casonera (a kind of aloe), he came to Kiszagin, the first inhabited place in the kingdom Hambó, near the river Kubale, 2800 feet above the sea.

After 7 days' journey he arrived at Kandala, a larger town, built on a pyramidal mountain, with a fine view around the country.

From this place, after 5 days' journey, he reached the mountains of Kindumbó, which contain mines of metal and mineral springs. He ascended one of the highest mountains, called Lingi-Lingi, the view from which was magnificent, the plain being overspread with many villages and forests.

After travelling through some of these villages, he arrived at Colongó, the second city of the kingdom Hambó. The river Izésze rises in this country (11° lat.).

From Colongó, passing over the mountains Dsamba, the rivers

* Col. Sykes has already acted upon Mr. Cooley's suggestion.—ED.

The Moors are said to have been accompanied on their return from Benguela to the eastern coast by Antonio Francisco Ferreira da Silva Porto, a retired trader, long resident in Bihé, whose destination was Mosambique, through Tete.—W. D. C. This gentleman is said to have just arrived at Loando from the East coast.—ED.

Keve and Kutalu, he came to Kimblenge, the first village which he saw in the kingdom of Bihé.

The kingdom of Bihé, situated about 14° lat. and 18° 22′ long., is 4500 feet above the sea; the heat is generally 14° to 15° Reaumur. The boundaries of this country are—on the N., Bailundo and Andul; on the S., Kaking and Zambuila; on the W., the mountains of Hambó; on the E., the great river Koanza. The country is generally level; the soil an aluminous and siliceous mixture, and is extremely fertile. The mountains, which are not very high, are covered with beautiful forests. The inhabitants, called Kimbundu, are more civilised than other negroes. Both sexes are tall and well formed; they are hospitable; and in these parts of Africa the only ones who patronise merchants and travellers. They are very fond of ornaments and coloured dresses; are usually armed with spears 6 feet long, short Turkish knives, and some of them with fire-arms. They are polytheists, and have also several wives. The form of government is rather oligarchical, the king being obliged to share his power with the chieftains of the different tribes or families. The whole population is about 50,000, of whom one-tenth are slaves.

In the kingdom of Bihé, at Maszisikuitu, the Hungarian traveller settled himself, marrying the daughter of a chief. "I received," says the traveller, writing to his father, "no gold with her, but many bold elephant and tiger-hunters."

On the 20th of February, 1850, he left his new home with his wife and 285 armed men, and passing the river Kokema, he proceeded towards the E., and after 7 days' journey he arrived at the river Koanza, along which he marched, and found that it rises near the village Kapeke in about 15° 9′ lat., 20° long. The soil, from the river Koanza, a distance of about 300 geographical miles towards the E., is mostly sandy. Zebra, gazelle, wild oxen, horses, and elephants are here found in great numbers.

Passing the rivers Vindika, Kuiva, Karima, and Kambale, having left to the S. the kingdom of Bunda, he arrived in the great forests of Kibokue, which, from the 6th degree of lat., extend from W. to E.

Having visited Kariongo, the last town on the limits of the kingdom of Bunda, he came to an elevation 12 miles in circumference, in 10° 6′ lat. and 21° 19′ long., and 5200 feet above the sea.

"This country," says the traveller, "might be termed the mother of the greatest rivers of Central Africa." Here rises the river Kaszabi-Kandal, which being in some places several miles in width, and receiving many rivers, after a course of 1500 geographical miles, flows into the Indian Ocean. The rivers Lunge-Bungó, Lueña, and Lumegi flow through the kingdoms of Lobar and Kalui, and disappear in the unknown distance. Besides the

above-mentioned rivers, the Vindika, Kuiva, Karima, and Kambale rise also here.

After a journey of 33 days, passing the kingdom Kibokue and the river Lumegi, he arrived at Yah-Quilem, in Kalunda.

Yah-Quilem is situated on the shores of the great river Kaszabi, in about 4° 41′ lat., 23° 43′ long.*

Specimen of a Poem in the original language of the kingdom of Bunda, with Translation.

"Tumbalambendu o peku vi a poszoka.	Tumbalambendu, the pretty girl.
Dongonossi ziagambu mujembe.	Her beautiful eyes are bright as the stars of heaven.
Zingaveju ge mungomba.	Her hair and eyebrows are black as the mane of the zebra.
Dizona mulela boma.	Her full bosom is beautiful as the tooth of the boa.
Ditimbi sumbua ja vihua.	Her navel resembles the young mushroom.
Mazon dani peraba.	Her small teeth are white as paper.
Dizulo gue mukongo.	Her mouth is small and round.
Mubila gue kindele kumbaua.	Her stature is tall and graceful, as that of the white man."

"One evening," says the traveller, "before my departure, some of the negroes sang as follows:—

"Kindele vendatu catala poutu,	The white man, who came from so far to us,
Tumboca ovina kanaszuszu utyiti.	May he be happy, and without sorrow on his voyage.
Kiszala cuinue—Son-angé van-angé!	His memory is in our heart. God's blessing be with us!"

Remarks by Mr. Cooley.

The Hungarian traveller, on leaving St. Felipe de Benguela, directed his course south-eastwards to the elevated land called Namno or Nano, whence rivers flow in all directions. Hambo or Huambo, on the northern side of this table-land, lies N.E. of the Portuguese fort of Caconda. The river to which the traveller here alludes was undoubtedly the Catombéla, the name which he gives it, Kubale, being probably borrowed from the Mucobále, called by the Portuguese Cobaes, who occupy the country round Nano on the W. and N.W. In 12 days more he reached the mountains of Kindumbo on the eastern side of Nano, and here, as he remarks, rises the river Isésze. The river thus indicated is probably the main branch of the Cunéne; for this latter name, which merely signifies great, is properly given only to the stream

* From this city the Hungarian traveller wrote, on the 20th of April, 1851, these letters to his father, suggesting that the Government of Hungary might assist him in publishing his maps and the geographical description of his travels, or in sending to Europe some specimens of the vegetable productions of the country, skins, etc. "From the Portuguese Government," he says, "I might hope for support, but I give the preference to my own country."

These letters were sent to Dr. Rónay by B. Szemere, late minister of Hungary, with the request to communicate them to the Royal Geographical Society.

lower down after it has united numerous rivers from Nano, and we know that the Cunéne rises on the Eastern boundary of Hambo in the territory of the Sova Candumbo, evidently the Kindumbo of our traveller.*

From Colongo (perhaps the Galangue of the Portuguese) Ladislaus crossed the mountains of Dsamba—the Samba or Sambos of Portuguese accounts—and entered the country of Bíhé. On subsequently leaving this country, to proceed into the interior, he crossed the river Kokéma, and in 7 days arrived at the Quanza. It is remarkable that among the scattered particulars learned from the Bachuána and set down as memorandums in the margin of Livingston's map, the river Kokéma occurs in the neighbourhood of the Kuanja or Quanza. The Balojeza also of the same map may be conjectured to be the people dwelling on the left bank of the Isésze. The distance from Bíhé to the Quanza has been found to be 30 leagues, or about 70 geographical miles, in a straight line, so that the Hungarian marched direct about 10 miles a day. He then traced the Quanza some distance up, till, as he says, he ascertained the position of its sources, which lie, according to his calculations, about 90 miles S.E. of Bíhé. This statement refutes the opinion of M. José Lopez de Lima,† according to whom the Quanza flows from a great distance in the interior; and it confirms the account of José Botelho de Vasconcellos, a traveller in those countries, who places the sources of the Quanza on the confines of Galangue and Bíhé, in the territory of Samba Catenda.‡ a name which calls to mind the Dsamba Mountains crossed by our traveller on his way from Candumbo to Bíhé.

On his march from the Quanza to the interior, Ladislaus crossed four rivers, which, as he assigns their sources to the central highland, may be conjectured to belong to the basin of the Lulúa. He then came to the forests of Kibokue (Quiboque), extending E. and W., Bunda being on his right hand, that is, to the S. It is evident that these two countries, Quiboque and Bunda, lie, the former on the northern, the latter on the southern slope of the ridge that separates the basin of the Lulúa from that of the Seshéke. Leaving Quiboque, he crossed that ridge to the southern side, and passing through Kariongo, a village of Bunda, he came to what he calls "the Highest land of Middle Africa, and the mother of the waters." The great rivers mentioned by him as flowing from this elevated tract are the Kaszabi Kandal,§ that is to say, "the Cazembe river, flowing in the opposite direction" (from Benguela); the Langebongo and Lueña both belonging to the Lulúa; and the Lumegi, which is the Luambegi of preceding travellers, and the Liambae of the Bachuána—the main branch of the Seshéke. These rivers flow, he says, through the kingdoms Lobar and Kalui—the Lobale and Luy of my map.

Continuing his march from Bunda, Ladislaus crossed the Lumegi, and consequently his route lay to the S. of the Lualaba. Thence he proceeded to the kingdom of Kalunda, that is, the country of the Alunda, and arrived at Yah Quilem on the river Kaszabi. By this we are to understand that he came to the residence or village of the local chief, Libata ya Quilembe, situate on the Luapula, or, as he calls it, the Kaszabi (Cazembe) river. Quilembe is a Benguelan term of official rank, and would be naturally employed by a traveller speaking the dialect of Benguela; but it is possibly used also by the Alunda, for the Angolan, Pombeiro Pedro Baptista, relates that the Cazembe appointed Quilembes and Quilolos to conduct him to Tete.‖ There is reason to suspect that the Quilembe is the officer who collects toll or tribute,¶ and therefore

* Annaes Marítimos, 1844, p. 160.

† Ensaios sobre a Statistica dos Possessões Portuguezas, &c. 1846.

‡ Ann. Marit. ibidem.

§ The adverbial form (Quiandale) of this word is given by Cannecattim in his Dictionary of the Bunda language, under Ao contrario. Ao detraz, Ao travez.

‖ Annaes Marítimos, 1843, p. 432. ¶ Rilemba means toll or tribute.

the village of the officer (ya Quilembe) at which Ladislaus arrived may be presumed to be the same which, according to the Pombeiro's narrative, belonged to the lord of the port or ferry. The river at this place has a width of 114 yards; it is manifest, therefore, that when the Hungarian speaks of the great width of the Kaszabi and of its flowing to the Indian Ocean, he only speaks from hearsay, and repeats the accounts of the natives, in whose language the river is constantly identified with the lake into which it runs, the term Murisuro or Curisuro being equally applied to both. Having crossed the Lualaba into the country under the immediate sway of the Cazembe, he conceived that the hazards of his journey were at an end, and wrote to his friends announcing his success.

It now remains only to say a few words respecting the purely geographical details occurring in the narrative of Ladislaus. There is no ground for supposing that he was provided with maps or instruments, or any means of scientific observation; and furthermore, it must be borne in mind that we are not dealing with the original narrative, but with an abridged translation of it, in which the assigned geographical positions may possibly have been introduced for the sake of clearness by the translator, who would naturally in the course of his work make reference to a map. The Hungarian traveller, starting from Benguela in lat. 12° 25′ S., went S.E. by E. He crossed the table-land of Nano to a comparatively low country, Bíhé, which he observes is level, and has on the W. the mountainous country of Hambo. Yet to the latter, on the elevated table-land, he assigns an elevation of only 2800 feet, to the former of 4500 feet. These estimates have no solid foundation. The sources of the Isésze are placed by him in lat. 11°, obviously far to the N. of his route. Bíhé he places in lat. 14° S., long. 18° 22′. This position seems to have been taken from some old map. M. Lopez de Lima sets that place in lat. 13°, long. 16° 15′ E. The traders from Benguela reckon its distance by a circuitous route to be 118 leagues, or about 350 miles on the map. From Pungo a Ndongo it is about the same distance, or 12 days for a courier.

It is evident, therefore, that the position assigned to the Hungarian's starting point on his journey into the interior is affected by a considerable error. Bíhé must be carried back 2° of longitude and at least 1° of latitude. The sources of the Quanza, therefore, at the village of Kapeke (lat. 15° 9′, long. 20°), must undergo a corresponding change. Further on it is stated that the forest of Quiboque is in lat. 6°; nevertheless the traveller's next step is to the highland of Middle Africa, in lat. 10° 6′. These statements are utterly irreconcilable. The highland in question lies somewhere near lat. 10° 11′, long. 24° 25′. His assigned positions are based on the assumption that his general course was N. 7° E., and Yah Quilem is placed in lat. 4° 41′, long. 23° 43′. Now nothing can be more certain than the general direction of his route, E. 18° N. He went through Quiboque and Bunda, on the head waters of the Seshéke; he passed S. of Lobale, and reached the country of the Alunda and river Luapula, at the village of the Lord of the Ferry in lat. 10° 5′ S., long. 28° 25′ E., where he was not quite a hundred miles distant from the last position determined by Lacerda. His geographical positions are not merely discordant, but wholly erroneous and unfounded. His estimates of distance, however, are tolerably correct.

XVI.—*Mission to Central Africa.*

(1. Including a Letter from EDWARD VOGEL, Phil. Dr., to Mr. A. PETERMANN;

2. Notes compiled from Letters received from the Sappers and Miners attached to the Mission; and

3. Geographical Positions, communicated by the FOREIGN-OFFICE.)

Read January 9 and 23, 1854.

THE enclosed papers contain the map and section of my route* from Tripoli to Murzuk, based on ten points of latitude and longitude, observed and reduced by myself, as well as thirty carefully ascertained points of altitude, determined barometrically, and compared with simultaneous observations made at Tripoli. My original observations — astronomical, meteorological, and magnetical—are all on their way to the Foreign-Office, together with a small collection of geological specimens and plants. The former I have requested to be sent to Sir Roderick Murchison, whom I would request chemically to analyse the sample of salt and water of the Trona Lake (Bahr el Dúd) which I have sent at the same time. In another enclosure are some remarks on the climate of Fezzan, and of North Africa generally, which you will forward to Colonel Sabine.

Immediately on leaving the gardens of Tripoli the desert commences. The upper portion of the Taghona mountains is without vegetation and water, and strewn with many large stones; but its southern slope, near the Mulcher pass, has running water, and is here and there overgrown with grass. This region contains numerous Roman ruins. The highest of the Taghona mountains seen by me is 1529 feet above the level of the sea. The valley of Beniolid† extends from W. to E. for about 12 geographical miles, making a small bend about 4 miles from its eastern end. Both slopes of this valley are covered with villages; and basalt occurs on the southern slope. The bottom of the valley, which is 300 feet lower than Beniolid, is covered with forests of palm and olive trees, and contains twenty-seven wells. The inhabitants are Arabs of the Urfullu tribe, numbering 5000 souls; and are particularly rich in camels, of which they possess 12,000 head. The point I determined is the village of Dahúr Sibád, situated on the southern slope and at the eastern end of the valley, about 4 miles E. of the castle of Beniolid. From Beniolid we descended a valley, the direction of which is from N. to S., and reached on the second day, 30 miles distant from Beniolid, Wadi Sofejin, at a point where a flat-

* The same as that taken by Lyons and Ritchie, and also by Denham, Clapperton, and Oudney; and to the east of that selected by Richardson, Overweg, and Barth.

† Visited in 1817 by Admiral Smyth, who pointed out the routes since followed. *See* Appendix to Smyth's Mediterranean.—ED.

topped mound (Jella Si Amselám), 400 feet high, nearly closes up the latter. This valley extends from S.W. to N.E., in a width of 8 miles, limited to the N. by low sand hills, and to the S. by a range of limestone hills, which separate it from Wadi Zemzem, and contains the well of Enfád. Wadi Sofejin commences at Zentan, near the road from Tripoli to Ghadamis, and terminates in the Gulf of Sidra, between Mesurata and Isa. It forms the most fertile tract of the regency of Tripoli; its upper portion being particularly rich in figs, its middle portion in barley and wheat, and its lower portion near the sea in forests of date trees. According to these features the Arabs call these different parts *Tin* (fig), *Bazín* (cake or pudding), and *Washín* (paste made of dates). In the rainy season Wadi Sofejin is almost entirely inundated. The well of Enfád is surrounded with Roman ruins: the range of hills in which it lies being about 2 miles broad. Beyond this range is Wadi Zemzem, which runs parallel with Wadi Sofejin, and is about 35 miles wide. An inconsiderable elevated tract, about 50 feet high, divides it from Wadi Beij. which extends likewise from S.W. to N.E. Five miles E. and W. from the point where the road crosses this slight elevation between Wadi Zemzem and Wadi Beij are wells of bitter water, which are also called Zemzem. Except these and at Enfád there are no wells or inhabited places between Beniolid and Bonjem.

Bonjem is a small place, with 120 inhabitants, a few small gardens, and a castle; the whole being partly filled up with sand. It belongs to the regency of Fezzan, and is only 204 feet above the sea. Since 1843 the inhabitants have been free from taxes; Muhammed Pasha wishing to increase the strength of the place, chiefly as a military station against the bands of robbers in the neighbourhood, who had their stronghold and chief retreat in an ancient castle situated a little E. of Bonjem. The water of the numerous wells is strongly purgative. This place is also remarkable as forming the southern limit in these parts of that curious little animal the flea, which is here replaced by immense numbers of flies. During the march the latter congregated on and about the camels, and during the night they filled our tents. Most of them died before we reached Sokna, which is tolerably well supplied with house-flies; but, strange to say, not a single specimen accompanied us from this place.

Twelve miles S.S.E. from Bonjem is a remarkable hill, the Bazeen, 70 feet high, and consisting of limestone; and about 40 miles further to the S.S.E is a similar hill. called Khyema, resembling a tent, and 120 feet high. The latter lies at the foot of a range of hills which form a depression or a kind of pass where the road crosses it, called Khórmut el Mhálleh—*i. e.* "opening for the many," or Wadi Bunáyé. South of the latter a stony desert

again appears, limited in the East by a range of hills running parallel with the road, and about 15 miles distant from it. Twenty miles N. of Sokna a range of hills is crossed, extending in a direction of N.N.W. to S.S.E.; beyond which, in a small lateral valley, is found a well (Tmád el Tár), which is the first water after leaving Bonjem. Every place is called Tmád which yields water after removing the sand.

Sokna is situated in a hollow, 1036 feet above the level of the sea, and entirely surrounded by hills. To the E. there are the Black Mountains (Sode), forming a perfectly level tableland, and assuming, from the blue colour of its rocks, strikingly the appearance of a sea-horizon. The town is well built, and its inhabitants, numbering about 2500 souls, are in prosperous circumstances. The gardens are abundantly supplied with dates and various kinds of fruit. The supply of water is mostly derived from forty wells: they are all hot wells, and their temperature I found to be 88½°. Near Sokna are three considerable places—El Xer, 7 miles E.; Wadan, 20 miles E.; and Hoon, 4 miles N.E. The second is situated in the mountains.

Ascending a small valley of the Black Mountain, Godfu is next reached, with a well containing very good water, 1640 feet above the level of the sea. Fifteen miles S. of this well is the highest point of the pass, 2065 feet above the sea; the surrounding mountains being 2160 feet. The Black Mountains consist of yellow sandstone impregnated with iron, from which its crust receives a black colour, appearing in the sun's rays of a deep blue. Large round patches of a yellow or brown colour are often seen on these black rocks, which give to the whole a most remarkable appearance. The summits are low and flat, and the valleys mostly circular or oval-shaped hollows. Animal and vegetable life is entirely absent in this region, which vividly recalls to your mind a landscape by moonlight. The whole range is 25 miles broad. Beyond it, and as far as Om el Abíd, extends the Desert of Ben Afien (Serir ben Afien), perfectly level, with an average elevation of 1370 feet; without animals, without plants, and without water. We passed this desert at night, the heat, during the day on the surface, being so great as to burn the soles of the camels' feet. Fourteen miles N. of Om el Abíd (mother of slaves) are hills of drifting sand, called Gerenfad; and 7 miles further S. are rocks of sandstone, called Kenir. At Sokna are found the first salt-lagoons; but, beyond the Black Mountains, and as far as Murzuk, the surface is everywhere covered with a crust of salt. There is no inhabited place at Om el Abíd, but numerous wells of fresh water 15 feet below the surface. After Om el Abíd we reached Zirrhen or Zeghen; then Sebha, 1380 feet above the level of the sea, formerly a considerable place, and the residence of Abd el

Gelil, now in ruins, and with scarcely 400 inhabitants—the remains of 4000. Between Sebha and Rhodoa is a desert of fine sand, having midway a 60 feet deep well, without water, called Sidir Muserúd Samín. Twelve miles S. of Sebha four mountains are seen on the western horizon, which close up the Wadi Shergi; three of them being flat-topped, and one of a conic form resembling a pyramid.

Murzuk is situated in 25° 55′ 16″ N. latitude, and 14° 10′ 15″ E. longitude, 1495 feet above the level of the sea, in a sandy desert, interspersed with groups of date-palms. It is a very well built town, with broad streets, which is something very wonderful in an Arab town. The number of inhabitants, including slaves, amounts to 2800. The commerce is considerable, merchandise to the value of about 21,000*l.* changing hands every year, the slave-trade forming seven-eighths of the whole.

In the first week of September I made an excursion to the Trona Lakes of Fezzan, and determined their position. I have also visited those lakes of which Oudney and Clapperton say that they were shut up by inaccessible sand-hills; and, certainly, the desert in which they are situated is of the most terrific character—a labyrinth of hills, undulations, valleys, precipices—presenting literally not one square yard of level ground—formed entirely of drifting sand, in which the camels sank up to their bellies. For carrying my tent and cooking apparatus, together with two water-pipes, in all about 350 lbs. weight, I required no less than five camels; and, nevertheless, performed only 9½ miles in 18 hours. To form an idea of the height of these hills of drifting sand, I measured one trigonometrically, and found it to be 530 feet above the level of the adjoining lake. I desired to determine the height of the lakes by barometer, but found the transport of the latter impossible. The whole of these lakes are situated along the northern side of Wadi Shergi and Wadi Garbi. The direction of these valleys corresponds with a line from Bimbeja and Djerma, two places lying in their northern portion. Their width varies between 3 and 4 miles. The southern edge is formed of abrupt rocks of a soft kind of sandstone, in some places of a black or reddish-brown colour. A row of palm-trees, together with numerous wells and villages, forms a fringe along the northern side throughout the whole Wadi; Bimbeja, Kerkiba, and Djerma (17 miles W. of Kerkiba) being the most important of these villages. Djerma, though nearly as large as Sebha, is almost abandoned, and contains only forty inhabitants. To the W. of Sebha, and also near Murzuk, I found ancient towns, apparently built by the Romans; likewise the enclosure of a well near Djerma, undoubtedly of Roman origin, together with extremely interesting tombs, a description of which I have sent to the Chevalier Bunsen.

As the Trona Lakes, especially that of Bahr el Dúd, were re-

ported to be bottomless, and that every living being venturing in perished inevitably, my people were horrified to see me jump in, in order to sound the depth, which I found to be 18 feet on an average, and 24 feet where it was deepest. The dark colour of the water makes the lakes appear deeper than they really are. Along with my collection of natural history I have sent a small bottle containing some of the celebrated Fezzan worms, called "dúd," already described by Dr. Oudney. I have also sent, in a small box, the only beetle, besides black beetles, which I have found in Fezzan; also a beautiful little creature, called "tantan," which here infests the rooms in the same way as the flies in Europe. It runs with incredible rapidity, and is therefore difficult to catch. Of the worms I send you the enclosed drawing: their taste is very salt. They are caught with cotton nets, in which are hauled up at the same time innumerable flies and other insects, with which the lake is filled. The whole is mixed with a red kind of date into a paste, which has a similar smell and taste to salt-herring, and which is used by the inhabitants of Fezzan in the place of meat, along with bazeen.

2. *Extracts from Letters received from the Sappers and Miners employed on the Mission to Central Africa.*

A. *Tripoli to Murzuk.*—B. *Murzuk to Tibbú.*

A.—Corporal Church and Private Swenny of the Royal Sappers and Miners were selected to join the expedition under Dr. Vogel from about 100 volunteers.

At Tripoli Corporal Church mastered the use of the sextant, mountain barometer, azimuth compass, &c., so as to make accurate and ready observations.

Unfortunately at the commencement of the overland journey, Swenny was seized with congestive fever, and was sent to England. It was judged indispensable to seek for the services of another sapper, and from 36 volunteers of the company of the corps at Malta, Private Maguire was selected, and was at once dispatched to Tripoli to join the expedition.

The caravan employed 37 camels, carrying upwards of 4 tons of baggage, including presents for the Sultan of Bornu and other chiefs. The organization of a force of this kind, with the packing and distribution of the baggage, was a service of no common difficulty. This duty was confided chiefly to Corporal Church, who, in consequence of the temporary indisposition of Dr. Vogel, set out in charge of the expedition on the 19th of June, in company with Mr. H. Warrington,* and arrived at Beniolid on the 26th. Dr. Vogel rejoined the mission on the 2nd of July, and, after the repose of a day or two, the caravan was again in motion.

The expedition was well received on the route, especially at Sokna. A number of people approached them with greeting, and conducted them to an ample residence already prepared for their accommodation, where a supply of provisions was placed at their disposal, consisting of melons, green figs, dates, two sheep, two large dishes of bazeen, and three other dishes. In the evening a similar present was made to the travellers, and for four days after, these

* This, to the success of the expedition, so useful gentleman has since fallen a victim to the climate.—Ed.

benevolent natives persisted in indulging the mission with extravagant proofs of their cordiality and generosity. Offers were made in return to compensate them for their gifts, but they declined to take any equivalent, except a few English knives and razors, which they accepted with unequivocal tokens of satisfaction On quitting Sokna, the people and the governor of the place accompanied the adventurers a short distance on the road, and took leave of them with kind wishes for their welfare and safety.

The next day the mission entered the Pass of Jebel Asswad or Black Mountains—a region of dreariness and desolation. The stretch of vision was only here relieved by large masses of basalt which seemed to have been upheaved in every direction by some convulsion of nature, whilst in other places the rock had all the semblance of iron suddenly cooled after leaving the furnace. Much of the road was of the worst character, for it was not only hard and broken, but ridged in lines with sharp knife-like edges, which gashed the animals' feet and lamed them. This sterile district extended for more than 50 miles without even a shrub or an insect to invite observation; and, to add to their trials, the travellers were for 4½ days without water, save that carried on the backs of the camels, which, from being constantly influenced by the action of a scorching atmosphere, was always more than tepid, and had lost much of its relish. The heat of the sun was very excessive in those mountains. The thermometer, when exposed to the full blaze of the sun, rushed up speedily to 150°! and afterwards when Corporal Church withdrew the instrument from the sand in which he had buried it about 6 inches deep, the indication given was 130°. After passing the Black Mountains, the mission counted in one day nine skeletons of camels which had fallen dead in the desert.

The expedition now traversed a far-spreading plain, and then, being short of water, pushed on night and day for the well, called Om el Abíd, or the Mother of Slaves. Before gaining it they were wearied with 66 hours' exertion in the saddle out of 80, and the camel which Church had ridden from Tripoli, fell dead at Enfád from fatigue and exhaustion. In a few days after, 5th August, 1853, the expedition reached Murzuk.

Maguire joined the expedition at Murzuk on the 31st August, having journeyed from Tripoli to Murzuk with 3 or 4 Arabs in 34 days.

B.—The travellers, with Mr. H. Warrington still in company, left Murzuk on the 16th of October, and had a very toilsome journey as far as Gatrone, where they arrived on the 24th of the same month. Seven days they stayed at this place to await the arrival of the remainder of the caravan. In that time they were joined by fourteen Arabs and a caravan of merchants from Egypt, going to Bornu to purchase slaves, which is the principal traffic between Murzuk and the interior. While they were at Gatrone a caravan of about 700 slaves passed through it. Nearly the whole of the miserable creatures were women and children; the grown-up men in the drove did not seem to exceed twenty in number.

The expedition reached Tegery on the 3rd of November, and, after resting for a few days, collecting dates for the use of the camels, moved on the 7th into the Great Desert. In the first three days no less than 250 skeletons of slaves were passed. Fragments of bones and detached limbs were scattered about in vast numbers on the plain; so much so indeed that one could traverse the Desert without much chance of missing the track. At a well (probably Meshrú), about two days' journey from Tegery, the ground presented the appearance of an excavated cemetery, or a place where had been fought a well-contested battle. The tents could not be pitched for masses of bones on the line of march; and, to be free from the obstruction of these sickening relics of mortality, the party was compelled to remove to a distance to encamp for the night.

For 16 days they journeyed onwards without seeing a single native; and for

10 days after leaving Tegery they looked in vain to discover a shrub, a blade of grass, or the slightest trace of vegetable existence. In a valley called Ikba they found a little coarse grass that afforded an acceptable change to the camels after feeding for ten days upon dates.

The travelling was carried on at the rate of 12 and 13 hours a-day without halting. This was equal to a journey of from 25 to 30 miles, and was reckoned to be very fair progress, as camels usually only go over 2¼ miles of ground in an hour. The average heat of the sun ranged from 125° to 130°. The two sappers, by turns, watched through the hours of darkness to protect the caravan from injury or surprise, and suffered much from severe cold, owing to the state of the atmosphere falling from its extreme day-heat to a temperature sometimes as low as 45°!

At the date of Corporal Church's last letter (Nov. 28, 1853) the expedition was at Ashanumra, in the country of the tribes of Tibbú, where they arrived on the 27th of November. It was expected that the travellers, with Mr. Warrington, would be in motion again on the 30th of November; and, in 27 days after, would reach Kuka—the rendezvous of the mission—on the shores of Lake Chád.

3. *Geographical Positions of Places in North Africa and Fezzan, determined by Edward Vogel, Phil. Dr.*

Communicated by the FOREIGN-OFFICE.

Name of the Place.	North Latitude.			Long. E. from Greenwich.			Magnet. Declination W.			Magnet. Dip.			Remarks.
	°	′	″	h	m	s.	°	′	″	°	′	″	
* *Tripoli* . .	32	53	58	0	52	46	14	20	1	49	20	45	Garden 0·15 naut. mile N., and 1·30 E. from the Castle.
†Beniolid . .	31	44	22	0	57	9	12	52	38	..	..		South edge of the valley, Village of Dahúr Sibad.
Enfád . . .	31	27	39	0	59	48	..	..		..	..		300 yards W. from the Well.
Bonjem . . .	30	34	58	1	2	7	12	38	56	..	..		Castle.
Sokna . . .	29	4	4	1	5	14	12	41	39	43	22	9	Garden of the Moudir, close to the eastern gate of the Town.
Om el Abíd .	27	30	48	1	1	25	13	3	8	..	..		Wells.
Gurméda . .	27	14	19	1	0	8	..	..		..	..		Wells and Palm-trees.
Sebha . . .	27	2	34	0	58	52	13	22	59	..	..		Town.
Rhodoa . . .	26	26	1	0	58	35	..	..		..	..		Village with Wells.
Murzuk . . .	25	55	16	0	56	41	13	5	43	38	38	12	English Consulate.
Bimbeja. . .	26	34	48	0	54	41	..	..		..	..		Large village in Wadi Shergi.
(Worm Lake) Bahr el Dúd	26	42	0	0	54	57							
Mandra Lake .	26	41	22	0	53	31							
Jerma . . .	26	25	0	0	52	35	..	..		..	..		Ancient Capital of Fezzan, Wadi Cherbi (Garbí?).
Godfú . . .	28	50	43	1	4	32	..	..		..	..		Well at the foot of the Black Mountains.

* Tripoli *Castle* is lat. 32° 53′ 56″ N.; long. 13° 12′ 58″ E. *See* Smyth's 'Mediterranean.' —ED.

† Beniolid *Castle* is lat. 31° 45′ 38″ N.; long. 14° 12′ 10″ E.

Elevation of Places in North Africa and Fezzan above the level of the Mediterranean, determined with the Barometer.

Name.	Elevation, English Feet.	Remarks.	Name.	Elevation, English Feet.	Remarks.
Tripoli . . .	50½	English garden.	Wadi Zemzem	384	
Ainzara . . .	74	Water-pool in the Desert, 7 miles S. from Tripoli.	Bonjem . . .	204	
			Wadi Bunáyé .	695	48 miles S.E. from Bonjem.
Tobras . . .	173	Well, 14 miles S. of Tripoli.	Tmád el Tár .	1110	Well 15 miles N.W.
			Mountains . .	1350	.. from Sokna.
Zeïach . . .	407	Marabut and Well 27 miles S. of Tripoli.	*Sokna* . . .	1036	
			Godfú . . .	1640	Sode, Black Mountains.
			Mountains near Godfú . . .	1900	
Mulcher Pass .	704	Taghona Mountains.	Valley in the Black Mount	2065	Sode, 15 miles S. from Godfú.
Hills E. of the Pass . . .	1309				
Mulcher, Well .	1089		Mountains around it . .	2160	
Hills E. of the Well . . .	1529				
			Desert S. of the Sode.	1380	About 35 miles S. from Godfú.
Máthen . . .	1176	About 25 miles N. from Beniolid.	Om el Abíd .	1360	
Mi Muher . .	1235	Wadi, 10 miles N. from Beniolíd.	*Sebha*. . . .	1380	
			Desert between Sebha and Rhodoa.	1590	About 25 miles S. from Sebha.
Beniolíd . . .	920	South edge of the Wadi.			
Wadi Sofejin .	270	15 miles N.W. of Enfád.	Rhodoa . . .	1550	
			Murzuk . . .	1495	Level of the street opposite to the English Consulate.
Enfád. . . .	269	Well.			
Ditto	412	Mountains.			

Murzuk, Oct. 1, 1853.

XVII.—*Extract of a Letter from Dr. Barth to Dr. Beke, dated Timbuctu, Sept. 7th,* 1853.

With Routes in Central Africa.

Read March 27, 1854.

On setting out from Libtako we expected to reach Timbuctu in about 20 days, but have been obstructed, partly by heavy rains, swollen streams, the weakness of my camels (of which two have died and four more have been knocked up since leaving Bornu), and by the sickness and trading of the Timbuctu man whom I had hired in Libtako. We were conducted neither by way of Hombori nor by the common pilgrim-road, through Gilgoji, Dalla, and Duenza, but by a roundabout road through some small and independent towns of the Sonray, called Koar by the people of Timbuctu, and then through the midst of the Tuarick tribes of the Tademekket, who occupy all the country S of the Mayo or Isa for more than 60 miles. We arrived at length, on the 27th of August, at

Saraiyamo, the place mentioned in the itinerary of Ahmed bel Mejúb, the largest place we have seen since leaving Say; and embarked, the 1st of September, on a fine broad sheet of water, 300 yards from the town, which, however, further on was much overgrown by grass. The large number of channels—called *rijl* by the Arabs of Timbuctu—formed by the inundations of this great river are remarkable: I think there is no river to be compared with it in this respect. You will form a better idea of the net of channels which we met with by a glance at the map which I am about to forward to the Foreign-Office than by a long description. In the afternoon of the 5th day, after a curious zigzag navigation, we arrived at Kábara, having entered the river itself on the afternoon of the 4th day. I say we arrived at Kábara—indeed in the boat, at least I myself and the luggage, almost at the end of the rainy season—but you will be greatly surprised when I tell you that this celebrated port of Timbuctu lies several miles distant from the river, and is only accessible by water during four or five months of the year, when the rains have been most plentiful; and it is quite impossible to reach this place by water in the month of April. Indeed, the channel by which we went up to Kábara on the 5th of September was so small that, after all the people had left the boat besides myself, it was dragged up with the greatest difficulty by the boatmen, who went in the water, which in most places did not reach up to their knees, and was about 15 feet wide. Just before Kábara a larger basin is formed, perhaps artificially, where a few vessels were lying, while a row of barks of considerable size were seen at Korome near the mouth of the channel, forming a really magnificent sight. Indeed, this moving village and the island or islands of Day lying between Kábara and the river may be more correctly called the port of Timbuctu than Kábara, which is a small town or ksar of about 400 houses and huts. As for the Mayo itself, it is a really splendid river, with which, of all the rivers I have seen, I can only compare the Nile at its highest flood; and the river is still rising, but never reaches Kábara.

My entry into this fanatic place was very grand, escorted as I was by the brother of the Sheikh el Bakay, with several people on horseback, on camels, and on foot; and I was saluted by the most respectable of the inhabitants and strangers who came out to meet us. Nobody but the sheikh's brother was acquainted with my real character, while all the rest thought, or were told, that I was a messenger of the Sultan of Stambúl.

There being a kafla of Tawatis intending to start the day after to-morrow for Tawat, I hasten to close this letter, which indisposition has prevented me from making more interesting, and I will only add a few data:—

Timbuctu, situated ..	18°	4′	0″	N. lat.	..	1°	45′	0″	W. long.	Greenwich.
Saraiyamo	17	6	0	,,	..	1	53	30	,,	,,
Junction of the channel with the river	17	46	0	,,	..	1	50	0	,,	,,
Bóne	15	50	0	,,	..	1	0	0	,,	,,
Kúbo	15	19	0	,,	..	0	22	30	,,	,,
Arribinda	14	53	0	,,	..	0	6	10	E. long.	,,

Even during the highest rise of the river, a person going to Bamba and Ga'o has first to return S. and E. to get into the river; the channel or ditch of Kábara having no outlet towards the East.

Routes from Kano to Nyffe, and from Mozambique to Lake Nyassi. Extracted from Letters from Dr. Barth to Dr. Beke, dated Kano, March 4th, and Kuka, July 25th, 1851.

1. *Kano to Nyffe.*

I now send you the route from Katshna to Nyffí, according to a man who has travelled much, and whom I was about to hire as a servant, Mohammed Annoor.

1st day. About Aser you arrive at Metomáti, a large village, after having passed several smaller ones on the road, one of which is called Goúra.

2nd. Before Aser arrive at a place called Gari-n-mu-tum-daea (the place of the single person), because since it was destroyed by the Fellanis it has been entirely deserted. Near the village is a large valley, with constant water in the dry season. The whole day's journey is through forest.

3rd. About half-past one o'clock P.M. you encamp in the middle of the forest, where there is plenty of water.

4th. Between Kaila and noon arrive at Grib Mohammed Diko

5th. At sunset reach Gabezava, a place surrounded by a mud wall, and the residence of three different chiefs—one of whom is from Gober, one a Kohelán, while the third, who is named Omárú, is a Fellani. Forest; but in the neighbourhood of Gabezava there are villages.

6th. After Aser arrive at Katúrkeshi, a place surrounded by a mud wall, in a state of decay. To the right and left you have villages.

7th. About Kaila arrive at a small place surrounded by a hedge, called Kurmi-uyâ. The whole road through forest.

8th. About half-past one o'clock P.M. arrive at a village called Magajia, belonging to the wife of the governor of Guari. The road lies through a country irrigated by many streamlets. A part only is cultivated, the remainder being covered with forest. To the right and left you pass some villages.

9th. About half-past two o'clock P.M. reach a large place called Fitonguari, surrounded by a wall. On the road there is but little wood, almost the whole country being cultivated. Villages to the right and left.

10th. At half-past one o'clock P.M. arrive at Birni-n-Gúari, a large town, governed by Sultan Mahmûd. Both the wall and the houses are built of mud. The palace lies in the S. quarter. There is a small stream on the E. side of the town. The country is a little hilly.

11th. About half-past one o'clock P.M. reach Bakí-n-Kogí (the mouth of the stream), a collection of scattered villages situated on the side of a watercourse, running first eastward, but afterwards turning back to the W. There are small barks on the stream. The whole country is cultivated, there being no forest at all. Villages to the right and left.

12th. Informant, after three or four hours' travelling, encamped, early in the morning, in the cultivated lands still belonging to Guari.

13th. At about eleven o'clock A.M. reach Kurmi-n-Womba, a little open place on a small watercourse, which forms the frontier of the province of Katshna.

14th. About the same time encamp at a well, called Kurmí; the road lies through a cultivated country, with but little wood. Villages to the right and left.

15th. About the same time arrive at Womba, a large town surrounded by an earth wall, the residence of a sultan, who is independent, although the country belongs to Guari. The town, which is built entirely of hasheesh (the house of the sultan alone being built of earth), has a daily market, which is much frequented. All the inhabitants are Kohelán. The whole country is well cultivated; there is a good deal of rice, and many gonda trees.

16th. About nine o'clock encamp near Gotsi-n-dutsi, a small village belonging to Womba. The whole country is well cultivated. At one place the road passes between two rocks.

17th. About eleven o'clock A.M. reach Mátene, a large town, with a governor, belonging to the Kohelán, who pays tribute to the Sultan of Zaria, to which place it is a seven days' journey from Mátene. Here is a small rivulet. The country through which the road lies is hilly, with many trees. Much cotton.

18th. About half-past one o'clock P.M. arrive at Kurmi, belonging to Nyffi, situated on a small stream which runs into the Kaduna. There are villages to the right and left of the road.

19th. About eleven o'clock A.M. arrive on the northern bank of the Kaduna, where you encamp. There are large boats on the river. The country all under cultivation.

20th. Early in the morning informant encamped in the forest.

21st. About half-past one o'clock P.M. arrive at a large place called Debba, with a market much frequented. The houses are built of mud and hasheesh. There is a small rivulet near the village. The country well cultivated, and shaded by many trees, such as the gonda and labuje.

22nd. Early in the morning encamp at Gari-n-babérbere, a large place surrounded by a wall of mud.

23rd. At the same time (about nine o'clock) reach Kurmi-n-kada, a considerable open place with a large pool in the centre, in which there are crocodiles (hence the name of the village); this water is navigated in kaderkos.

24th. About eleven o'clock A.M. reach Yakaji, a large walled place, with a sultan. There is a rivulet here. The road is covered with forest.

25th. About eleven o'clock A.M. arrive at a large walled place called Mákua. The houses generally are built of mud and hasheesh; and there is a tank in the village. There is plenty of gonda and áyeba.

26th. About nine o'clock arrive at Raba, a place now in ruins.

Ledé, the present capital of Nyffi, is two days from Mákua.
From Gotsi-n-dutsi a road branches off in a more westerly direction, leading to Gorji, one of the most important places of Nyffi.

1st day. About Aser reach Bere; the road lying through a country covered with forest.

2nd. About Aser reach Kurremi, an open village.

3rd. About eleven o'clock A.M. reach Sabó-n-garí, a large place surrounded by a mud wall.

(4th. About nine o'clock reach Ungoi-káramá, a place situate on a mountain; the whole country being hilly. Farther off is Ungoi-babá, also upon the mountain. This is not in the direct line; the traveller returning to Sabó-n-garí, and thence pursuing the direct road.)

4th. About nine o'clock A.M. arrive at Gari-n-maiyaki, a large walled place in the plain.

5th. About the same time reach Baki-n-kogí, a small village situated on a river which unites with the Kaduna.

6th. About ten o'clock reach Gorji, a large walled town with a considerable market, lying upon a hill over the river called Baki-n-kogí, but identical with the Kaduna. Much tobacco. Ledé is 4 days' journey from Gorji.

Going from the E. towards Raba:—Jangaru, Gorji, Akâre, Yakâji, Jemâgu, Rafi-n-kâdâ (with many crocodiles), Makera, Bakánne (one of the most considerable places), Mákua, Raba.

Coming from the N.:—Tshédia, Daba, Karofi, Gotomeji, Búllada, Jéngi (the native town of Sultan Masaba), Raba.

Going S. from Raba:—Lemú, Za (situated in the river Egga).

To these I may add Kafeto, a place of importance.

2. *Mozambique to Lake Nyassi.*

Earlier than I expected I have been forced to return from my journey to Adamaua, Mohammed Loél, the governor of that region, having suspected my objects in exploring his country.

At Yola a prospect opened to me of alluring magnitude. I there met a very amiable Arab, Sheríf Mohammed ben Ahmedu, a native of Mokha in Yeman, who had travelled all over the eastern shores of the African continent, from Jard Hafún as far down as Sofála, and had penetrated from Mozambique to Lake Nyassi, and who, being well acquainted with the English, declared himself ready, for a sum of 300 dollars, to be paid at Zanzibar, to penetrate with me across the continent in the direction of that magnificent lake Nyassi being the great centre of the commerce of an immense part of Central Africa, I am sure we should have to go scarcely a month's journey from Baia in that direction, before we fell in with the frequented road to that market. I must satisfy myself, however, with giving you my friend's itinerary from Mozambique to Nyassi, which, as far as I know, is quite new. I should have been able to give many corrections for that part of the continent, if the order of the governor had not driven me away from Yola. But I entertain strong hopes to see my Sheríf again.

Itinerary.

1st day. Sleep in Sembe, the landing-place on the coast after having crossed the channel.

2nd. Mesoka, a place paying tribute to the Portuguese, and on friendly terms with them.

4th. Muguru, the first place of the Mókkua or Mákua, with a governor of the name of Mosir. All the houses are of gesh.

6th. Encamp on the banks of the Mezizima, a small rivulet, but containing water at all seasons of the year. The whole country is flat.

8th. Inati, a large place of the Mókkua (with a governor of the name of Namakoma), situated at the southern foot of a mountain, which is visible at four days' distance.

10th. Encamp at a part, full of trees, on the banks of the river Lori, which, though not navigable, is of considerable size.

14th. After a four days' journey through a level country, reach, in the evening of the fourth day, Marabázi, a pretty village of the Mókkua, situated on the river.

15th. Between one and two o'clock P.M. arrive at Méto, the residence of Malia, the powerful chief of the Mókkua, situated in a valley enclosed by low mountain ranges. The country is hilly, but cultivated.

16th. After a journey of about 8 hours, pass the night.

18th. Sleep on the banks of a river enclosed by rocky heights.

21st. Sleep in a village situated at the foot of a large mountain, after having on the second day passed a rivulet running towards the sea, like all the above-mentioned watercourses.

22nd. Sleep on the banks of the river Luvúma, containing water at all seasons of the year.

23rd. Between one and two o'clock P.M. enter the territory dependent on the tribe of the Mohiau, commencing at the village Mokoiyaiha, situated beyond a chain of almost isolated mountains. Beyond this village, where you pass the night, the entire country is cultivated.

26th. After about 2 hours' journey, enter the mountains (all the country, on the 24th and 25th days, being flat), and reach a village of the Mohiau, called Murinde, situated at the foot of a mountain.

28th. Arrive on the banks of the rivulet Lyyinde, issuing from a lake called Killúa and joining the Luvúma. Both days the country passed is flat.

29th. Chánia, a settlement of the Mohiau.

30th. Enter a large mountain-chain, containing numerous springs; and sleep in a village situated in the midst of the mountains.

31st. Reach Menímam, a small village situated beyond the mountains, on a rivulet running E.

32nd. Sleep in a village situated in another mountain-chain, after having, about noon, passed a broad ancient road which has the appearance of a dry watercourse, and which avoids the mountains and runs from S. to N. This road, respecting which my informant was quite full of astonishment, and which is the common talk of the people of all the country round, as being a monument of former ages, is called Mulíla.

33rd. A steep descent from the village where the last night was passed brings you about noon down to the shore of Lake Nyassi. You sleep in the village of Moála, where a market is held, though the great market-place of Nyassi is Ngómbo, 3 days N. of Moála. A white rock rises in the lake not far from Moála.

In crossing the lake from Ngómbo to its western side, where the capital of the sultan of Nyassi is situated, you pass one night on an island.

The lake neither rises nor falls at any season of the year. My informant thinks it most probable that the Nile takes its origin from this lake, though he did not visit its northern part.

To the W., or rather to the W.N.W., of Nyassi, he heard of another extensive lake, called Timbáze, distant about a month's journey.

XVIII.—*The Limpopo, its Origin, Course, and Tributaries.* By Mr. THOMAS BAINES.

Read January 9, 1854.

ON the northern side of the Vaal river, dividing the waters that flow into it from those that swell the streams to the northward, lies a tract of high land, from 60 to 100 miles in breadth. The northern side of this high land is called the Witte Water's Raandt; and farther west, where the Mariqua rises, it is named the Zwart Ruggens.

Opposite to the Witte Water's Raandt, and nearly parallel to it, is the Magálie's-berg, or Cashan Mountains, leaving a

valley of 6 or 7 miles in width, and 60 or 80 in length, between them.

Out of the Raandt springs the Oori or Krokodil river, forming the main source of the Limpopo, which, after traversing the valley, passes through a neck in the Magálie's-berg, within ½ mile of the dwelling of the late Andries Pretorius, the commandant of the Dutch emigrant boers.

On the western side it receives through other necks or poorts in the mountain, the waters of the Masuquaána, near which, on the N. side of the mountain, stands the village of Rustenberg and the Klikling or Eland river.

To the N. of this, in about 25° S. latitude, lies Pilan's-berg, with the kraal of the chief, from whom it is named, under its eastern face.

Near the junction of the Masuquaána with the Oori, or as it may now be called the Limpopo, the combined streams pass through the Fly-poort at the southern extremity of the Waterberg, or Mural Mountains of Captain Harris. The river then taking a N. or N.N.E. course, receives the Mariqua; the Notuang; the Malaphi; the Luitzanie; the Zoquiene, a small brackish river; the Paqua; the Macloutse, a large river disappearing at intervals in the sand; and the Shash or Shazie. The main stream turns gradually more eastward, and from this point runs directly towards the rising sun in June or mid-winter. What course it takes afterwards I am unable to say; but that it does not run into Delagoa Bay seems, from the testimony of Mr. Coqui, who has crossed the sources of all the rivers flowing into that bay, tolerably certain.

From the high land between the Macloutse and the Shash, Mr. M'Cabe informed me that to the W.N.W. appeared a mountain-range, dim and indistinct in the blue distance; but his hunters, though they rode 50 miles or more in that direction, were obliged to return for want of water. To the S.E. and across the Limpopo, were seen the Blue-berg; and farther E., the point of Zoutpan'sberg, the residence of the old commandant, Hendrik Potgieter.

Let us now take up the stream again at its source, and enumerate its tributaries on the eastern side. One of these, the Jeukskei, or Yoke-key river, so named from a broken yoke's key having been found on its bank, possesses an interest, from the probability of its having been the hunting-ground of Captain Harris, and the key possibly a memento of one of the mishaps occasioned by his mutinous waggon-driver.

Farther E. are the Apie and the Pienaar rivers, which, after passing through the Magálie's-berg by the Wonderboom and Derde poorts, join the Limpopo near the Fly-poort. From thence

the Waterberg stretches about N.E.; and under its southern side is a warm-bath or spring, where the Dutch assemble to hear service, on the periodical visits of their minister. From the N.W. side of the mountain flow the Baclapatre or Maclapatre, the Tlalla, the Palhalla or Rhoebok river, and the Magàliquaine.

On the eastern side of the Waterberg, as before mentioned, and on the southern face of the Zoutpan's-berg, lie the fort and village of the old commandant, Hendrik Potgieter. Between the latter mountain and the Blue-berg is the residence of a tribe of Kafirs, said to retain many of the customs of the Mahometan religion, and on that account called by the Dutch, Zlámzie (Islám's) Kafirs; and to the N. of this is the drift by which the boer's commando crossed the Limpopo for the purpose of attacking Moselikatse, who occupies the regions to the northward, and who, threatened with the vengeance of the surrounding tribes, is checked in his progress northward by a large river, over which the natives refuse to ferry him.

Returning again to the Magálie's-berg, we take the north-eastern road, and crossing the Eland and Elephant rivers, both running to the N., cross the Magniet's-hoogte, the rocks of which possess so powerful a magnetic property that particles of dust and small stones adhere to the tires of the waggon-wheels. Mr. Coqui gave me a piece, weighing about 2 lbs., capable of lifting a nail or knife-blade, and possessing in addition, a decided polarity.

A few miles beyond, Origstadt appears in a deep valley, and a wilderness of rugged mountain scenery. To the northward the Elephant river, having received the waters of the Eland river, flows to the N.E., under the name of the Pellulah or Lipalula, and is supposed to join the Limpopo, after passing through the Drakensberg.

From Origstadt the road continues to the eastward till it reaches the Drakensberg, a mountain-range, which, rising near Natal, stretches parallel with the coast to an unknown distance northward. The descent of this mountain — for it only shows a steep face towards the sea—occupies an entire day; and after crossing the Manice, the Omquinie, and the Tamati rivers (all of which rise in the Drakensberg, and can therefore have no connection with the Limpopo) a broad open country, thinly sprinkled with bush, and covered with all kinds of wild animals, presents itself; a spring of clear water and a forest are also found here. The Mattol, a broad, marshy, sluggish river, has next to be crossed near the point where it joins the Bay of Delagoa. The usual outspanning-place is on the beach, in front of a tongue of sand, on which stands the fort and village, containing about twenty miserable huts, of Lorenzo Marques. To the eastward of the fort the Manice falls into the bay, having 8 fathoms at its

mouth, and 2 at about 40 miles up, to which distance some of the smaller slave schooners proceed for the purpose of receiving their cargoes from the great dealer in human beings in those regions, the Kafir chief, Manekos, who holds the country to the eastward of the river. A nearer route than that last mentioned leads from Delagoa Bay to Origstadt, across the Tamatie, the Omquinie, and the Manice, near their junction, where they form a large and sluggish sheet of water, most probably that seen by Louis Triechardt some twenty years ago. Canoes are used by the natives there; and the boers think of settling the country under the Drakensberg, where it is proposed, in consequence of the unhealthy situation of the old town, to build another, to be called Liebenburg, or New Origstadt.

XIX.—*Explorations into the Interior of Africa.*

By Dr. DAVID LIVINGSTON.

Extracted from Communications received from Lieut.-Col. STEELE, F.R.G.S.; GEORGE FREGE, Esq., F.R.G.S.; The LONDON MISSIONARY SOCIETY; and THOMAS MACLEAR, Esq

Read June 12, 1854.

Town of Sekeletu, Linyanti, 20th September, 1853.

MY DEAR COLONEL,—As soon as I could procure people willing to risk a journey through the country lately the scene of the gallant deeds of the Boers, I left Kuruman; and my companions being aware of certain wrathful fulminations uttered by General Piet Scholtz to deter me from again visiting the little strip of country which the Republicans fancy lies between Magáliesberg and Jerusalem, our progress was pretty quick till we entered lat. 19°, at a place that I have marked on my map as the Fever Ponds. Here the whole party, except a Bakwain lad and myself, was laid prostrate by fever. He managed the oxen and I the hospital, until, through the goodness of God, the state of the invalids permitted us again to move northwards. I did not follow our old path, but from Kamakama travelled on the magnetic meridian (N.N.W.), in order to avoid the *tsetze* (fly). This new path brought us into a densely wooded country, where the grass was from 8 to 10 feet high. The greater leafiness of the trees showed we were in a moist climate, and we were most agreeably surprised by the presence of vines growing luxuriantly, and yielding clusters of dark purple grapes. The seeds, as large as split peas and very astringent, leave but little room for pulp, though the grape itself is of good size. The Bakwain lad now became ill; but, by the aid of two Bushmen, we continued to make some progress. I was both driver

and road-maker, having either the axe or whip in hand all day long till we came to lat. 18° 4′. Here we discovered that the country adjacent to the Chobe was flooded: valleys looked like rivers, and after crossing several we came to one, the Sanshureh, which presented a complete barrier to further travelling with waggons. It was deep, ½ a mile broad, and contained hippopotami. After searching in vain for a ford, our two Bushmen decamped. Being very anxious to reach the Makololo, I took one of the strongest of our invalids, crossed the Sanshureh in a small pontoon, kindly presented by Messrs. Webb and Codrington, and went N.N.W. across the flooded country in search of the Chobe. After splashing through about 20 miles of an inundated plain, we came to a mass of reed, which towards the N.E. seemed interminable. We then turned for a short distance in the direction of our former waggon-stand, and from a high tree were gratified by a sight of the Chobe; but such a mass of vegetation grew between the bank and the flowing river, that our utmost efforts failed in procuring a passage into it. The water among the reeds either became too deep, or we were unable to bend down the barrier of papyrus and reed bound together by a kind of convolvulus. You will understand the nature of our struggles, when I mention that a horrid sort of grass, about 6 feet high, and having serrated edges which cut the hands most cruelly, wore my strong moleskin "unmentionables" quite through at the knees, and my shoes (nearly new) at the toes. My handkerchief protected the former; but in subsequent travelling through the dense grass of the plains the feet fared badly. Though constantly wet up to the middle during the day, we slept soundly by night during the three days we spent among this mass of reeds, and only effected a passage into the open water of the Chobe river on the fourth day. After paddling along the river in the pontoon about 20 miles, we discovered a village of Makololo. We were unexpected visitors, and the more so since they believed that no one could cross the Chobe from the S. bank without their knowledge.

In their figurative language they said, "I had fallen on them as if from a cloud, yet came riding on a hippopotamus" (pontoon). A vague report of our approach had previously reached the chief, and two parties were out in search of us; but they had gone along the old paths. In returning to the waggons, which we did in canoes and in a straight line, we found the distance not more than 10 miles. Our difficulties were now ended, for a great number of canoes and about 140 people were soon dispatched from the town. They transported our goods and waggons across the country and river, and when we had been landed on the other side of the Chobe, we travelled northward till within about one day from Sesheké, in order to avoid the flooded lands adjacent to the river. We there

struck upon the path which Mr. Oswell and I travelled on horseback in 1850, and turning into it proceeded S.W. until we came to Sekeletu's town Linyanti. Our reception here was as warm as could have been expected. The chief Sekeletu, not yet 19 years of age, said he had got another father instead of Sebituane; he was not quite sure, however, about learning to read: "he feared it might change his heart and make him content with one wife only, as in the case of Sechele." It is pleasant to hear objections frankly stated.

About the end of July we embarked on our journey to the N., embarking at Sekhose's village on the Zambesé, or, as the aborigines universally name it, the Leeambye, viz., *the river*. This village is about 25 miles W. of the town of Sesheké. When I proposed to Sekeletu to examine his country and ascertain if there were any suitable locality for a mission, he consented frankly; but he had not yet seen me enough. Then he would not allow me to go alone; some evil might befal me, and he would be accountable. This and fever caused some delay, so that we did not get off till about the end of July. In the mean time I learned particulars of what had taken place here since my last visit in 1852.

The daughter of Sebituane had resigned the chieftainship into (Sekeletu's) her brother's hands. From all I can learn she did it gracefully and sincerely. Influential men advised her to put Sekeletu to death, lest he should become troublesome when he became older. She turned from their proposals in disgust, called a meeting, and, with a womanly gush of tears, said she had been induced to rule by her father, but her own inclination had always been to lead a domestic life. She therefore requested Sekeletu to take the chieftainship, and allow her to marry.

He was equally sincere in a continued refusal during several days, for he was afraid of being cut off by a pretender, who had the audacity to utter some threatening words in the assembly. I do not now wonder at the resolution of Sebituane's daughter, who had just come from a nine weeks' tour, in company with a crowd who would have been her courtiers: there was no want of food, oxen were slaughtered almost every day in numbers more than sufficient for the wants of all. They were all as kind and attentive to me as they could have been to her, yet to endure their dancing, roaring, and singing, their jesting, anecdotes, grumbling, quarrelling, murdering, and meanness, equalled a pretty stiff penance. These children of nature gave me a more intense disgust to heathenism, and a much higher opinion of the effects of missions among tribes in the S. which are reported to have been as savage as they, than I ever had before.

The pretender above referred to, after Sekeletu's accession, and at the time of my arrival, believing that he could effect his object

by means of a Portuguese slave-merchant and a number of armed Mambari, encouraged them to the utmost. The selling of children had been positively forbidden by the lawful chief Sekeletu, but his rival transported the slave-trading party across the Leeambye river, and gave them full permission to deal in all the Batoka and Bashukulompo villages to the E. of it. A stockade was erected at Katongo, and a flag-staff for the Portuguese banner planted, and in return for numerous presents of ivory and cattle, that really belonged to Sekeletu, the pretender received a small cannon. Elated with what he considered success, he came down here with the intention of murdering Sekeletu himself, having no doubt but that, after effecting this, he should, by the aid of his allies, easily reduce the whole tribe. We met him on our way to Sesheké, as we travelled there from Linyanti, and a very slight circumstance served to derange the whole conspiracy. The pretender carried a battle-axe, with which he had arranged with his confederates to hamstring Sekeletu, as a signal, when he rose up from their first interview. I happened to sit down between him and the pretender, and soon feeling disposed to retire for the evening, said to Sekeletu, "Where do we sleep to-night?" He replied, "Come, I will show you." We rose together, and my body covering that of Sekeletu, the attempt was not made. The accomplices came and revealed the whole in the evening. "If what you say you know to be true," answered Sekeletu, "take him off:" he was instantly led forth and executed in a hut close by. I knew nothing of it till the following day. Others, deeply implicated, were afterwards put to death in the same off-hand way; and when I remonstrated against shedding human blood, the counsellors calmly replied, "You see we are still Boers—we are not yet taught." Another Portuguese slave-merchant came also from the W. He remained here only three days, and finding no market, departed. A large party of Mambari was encamped by Katongo, about the time of our arrival at Linyanti. No slaves were sold to them; and when they heard that I had actually crossed the Chobe, they fled precipitately. The Makololo remonstrated, saying I would do them no harm, but the Mambari asserted that I would take all their goods from them because they bought children. The merchant I first spoke of had probably no idea of the risk he ran in listening to the tale of a disaffected under chief. He was now in his stockade at Katongo, and influential men proposed to expel both him and the Mambari from the country. Dreading the results which might follow a commencement of hostilities, I mentioned the difficulty of attacking a stockade, which could be defended by perhaps forty muskets. "Hunger is strong enough," said an under chief—"a very great fellow is he." As the chief sufferers in the event of an attack would be the poor slaves chained in

gangs, I interceded for them, and as the result of that intercession, of which of course they are ignorant, the whole party will be permitted to depart in peace: but no stockading will be allowed again.

Our company, which consisted of 160 men, our fleet of 33 canoes, proceeded rapidly up the river towards the Borotse. I had the choice of all the canoes, and the best was 34 feet long and 20 inches wide. With six paddlers we passed through 44 miles of latitude, by one day's pull of 10½ hours: if we add the longitude to this, it must have been upwards of 50 miles' actual distance. The river is indeed a magnificent one. It is often more than a mile broad, and adorned with numerous islands of from 3 to 5 miles in length. These and the banks, too, are covered with forest, and most of the trees on the brink of the water send down roots from their branches like the banian. The islands at a little distance seem rounded masses of sylvan vegetation of various hues, reclining on the bosom of the glorious stream. The beauty of the scene is greatly increased by the date palm and lofty palmyra towering above the rest, and casting their feathery foliage against a cloudless sky. The banks are rocky and undulating; many villages of Kanyeti, a poor but industrious people, are situated on both of them. They are expert hunters of hippopotami and other animals, and cultivate grain extensively. At the bend of Katima Molelo the bottom of the river bed begins to be rocky, and continues so the whole way to about lat. 16°, forming a succession of rapids and cataracts, which are dangerous when the river is low. The rocks are of hard sandstone and porphyritic basalt. The rapids are not visible when the river is full; but the cataracts of Kalé Bombwe and Nambwe are always dangerous. The fall of them is from 4 to 6 feet in perpendicular height; but the cataracts of Gonyé (hard by) excel them all. The main fall of these is over a straight ledge of rock, about 60 or 70 yards long and 40 feet deep. Tradition reports the destruction in this place of two hippopotamus hunters, who, too eager in the pursuit of a wounded animal, were with their prey drawn down into the frightful gulf. We also digged some yams in what was said to have been the garden of a man, who of old came down the river and led out a portion of it here for irrigation. Superior minds must have arisen from time to time in these regions, but ignorant of the use of letters, they have left no memorial. One never sees a grave nor a stone of remembrance set up. The very rocks are illiterate; they contain no fossils. All these beautiful and rocky parts of the valley of the river are covered with forest, and infested with the *tsetze* fly; but in other respects the country seems well adapted for a residence. When, however, we come to the northern confines of lat. 16°, the tsetze suddenly cease, and the high banks seem to leave the river and to stretch away in

ridges of about 300 feet high to the N.N.E. and N.N.W., until between 20 and 30 miles apart; the intervening space, 100 miles in length, is the Barotse country proper: it is annually inundated not by rains but by the river, as Lower Egypt is by the Nile, and one portion of this comes from the N.W. and another from the N. There are no trees in this valley, except such as were transplanted for the sake of shade by the chief Santuru; but it is covered with coarse succulent grasses, which are the pasturage of large herds of cattle during a portion of the year. One of these species is 12 feet high, and as thick as a man's thumb. The villages and towns are situated on mounds, many of which were constructed artificially. I have not put down all the villages that I visited, and many were seen at a distance; but there are no large towns, for the mounds on which alone towns and villages are built are all small, and the people require to live separate on account of their cattle. Nariele, the capital of the Barotse country, does not contain 1000 inhabitants; the site of it was constructed artificially. It was not the ancient capital. The river now flows over the site of that, and all that remains of what had cost the people of Santuru the labour of many years, is a few cubic yards of earth. As the same thing has happened to another ancient site, the river seems wearing eastwards. Ten feet of rise above low-water mark submerges the whole valley, except the foundations of the huts, and 2 feet more would sweep away the towns. This never happens, though among the hills below the valley the river rises 60 feet, and then floods the lands adjacent to Sesheké on both sides. The valley contains, as I said, a great number of villages and cattle-stations. These, and large herds of cattle grazing on the succulent herbage, meet the eye in every direction. On visiting the ridges, we found them to be only the commencement of lands which are never inundated: these are covered with trees and abound in fruitful gardens, in which are cultivated sugar-cane, sweet potato, two kinds of manioc, two kinds of yam-bananas, millet, &c. Advantage is taken of the inundation, too, to raise large quantities of maize and Caffre corn, of large grain and beautiful whiteness. These, with abundance of milk and plenty of fish in the river, make the people always refer to the Barotse country as the land of plenty. No part of the country can be spoken of as salubrious. The fever must be braved if a mission is to be established: it is very fatal even among natives. I have had eight attacks of it; the last very severe: but I never laid by. I tried native remedies in order to discover if they possessed any valuable means of cure; but after being stewed in vapour baths, smoked like a red herring over fires of green twigs in hot potsherds, and physicked *secundum black artem*, I believe that our own medicines are more efficacious and safer. I have not relinquished the search, and as I make it a rule to keep

on good terms with my professional brethren, I am not without hope that some of their means of re-establishing the secretions (and to this, indeed, all their efforts are directed) may be well adapted for this complaint.

I did not think it my duty to go towards *Mosioathunya*, for though a hilly country, the proximity to Mosilikatze renders it impossible for the Makololo to live there; but I resolved to know the whole Barotse country before coming to the conclusion now reached that the ridge E. of Nariele is the only part of the country that can be fixed on for a mission. I therefore left Sekeletu's party at Nariele, the Barotse capital, and went northwards. The river presents the same appearance of low banks, without trees, till we come to 14° 38′ lat. Here again it is forest to the water's edge, and *tsetze*. I might have turned now; but the river Londa, or Leeba, comes from the capital of a large state of the former name, and the chief being reported friendly to foreigners, if I succeed in reaching the W. coast, and am permitted to return by this river, it will be water-conveyance for perhaps two-thirds of the way. We went, therefore, to the confluence of the Leeba or Londa (not Lonta as we have written it) with the Leeambye: it is in 14° 11′ S. The Leeba comes from the N. and by W. or N.N.W.; while the Leeambye there abruptly quits its northing and comes from the E.N.E. (The people pointed as its course due E. Are the Maninche or Bashukulompo river and Leeambye not one river, dividing and meeting again down at the Zambese?) The Loeti, with its light-coloured water, flows into the Leeambye in 14° 18′. It comes from Lebale, which is probably a country through which a Portuguese merchant informed me he had passed, and had to cross as many as ten considerable rivers in one day: the Loeti comes from the W.N.W. The current of the Leeambye is rapid; 100 yards in 60 seconds of time, or between 4 and 5 miles an hour. Our elevation must have been considerable; but I had to regret having no means of ascertaining how much it was. The country flooded by the river ends on the W. bank before we reach the Loeti, and there is an elevated table-land, called Mango, on which grows grass, but no trees. The Barotse country, when inundated, presents the appearance of a lake from 20 to 30 miles broad and 100 long.

The Makololo quote the precedent of Santuru, who, when he ruled this country, was visited by Mambari, but refused them permission to buy his people as slaves. This enlightened chief deserves a paragraph, and as he was a mighty hunter, you will glance at it with no unfriendly eye. He was very fond of rearing the young of wild animals in his town, and, besides a number of antelopes, had two tame hippopotami. When I visited his first

capital, the people led me to one end of the mound and showed me some curious instruments of iron, which are just in the state he left them. They are surrounded by trees, all of which he transplanted when young. "On these," said the people, "Santuru was accustomed to present his offerings to the gods" (Barimo—which means departed souls too). The instruments consisted of an upright stem, having numerous branches attached, on the end of each of which was a miniature axe, or hoe, or spear. Detached from these was another, which seemed to me to be the guard of a basket-hilted sword. When I asked if I might take it as a curiosity, "O no, he refuses." "Who refuses?" "Santuru." This seems to show a belief in a future state of existence. After explaining to them the nature of true worship, and praying with them in our simple form, which needs no offering on the part of the worshipper except that of the heart, we planted some fruit-tree seeds, and departed in peace.

I may relate another incident which happened at the confluence of the Leeba and Leeambye. Having taken lunar observations, we were waiting for a meridian altitude for the latitude, before commencing our return. My chief boatman was sitting by, in order to bind up the instruments as soon as I had finished. There was a large halo round the sun, about 20° in diameter. Thinking that the humidity of the atmosphere which this indicates might betoken rain, I asked him if his experience did not lead him to the same view. "O no," said he, "it is the Barimo who have called a peecho (assembly). Don't you see they have placed the Lord (sun) in their centre?"

On returning towards Nariele, I went to the eastern ridge in order to examine that, and to see the stockade of the Portuguese slave-merchant, which was at Katongo. He had come from the furthest inland station of the Portuguese, opposite Benguela. I thought of going westward on my further travels in company with him, but the sight of gangs of poor wretches in chains at the stockade induced me to resolve to proceed alone.

Some of the Mambari visited us subsequently to their flight, of which I spoke before. They speak a dialect very much resembling the Barotse. They have not much difficulty in acquiring the dialects, even though but recently introduced to each other. They plait their hair in threefold cords, and arrange it down by the sides of the head. They offered guns and powder for sale at a cheaper rate than traders can do who come from the Cape Colony; but the Makololo despise Portuguese guns, because different from those in the possession of other Bechuanas—the bullets are made of iron. The slave-merchant seemed anxious to show kindness, influenced probably by my valuable passport and

letter of introduction from the Chevalier Duprat, who holds the office of arbitrator in the British and Portuguese mixed commission in Cape Town. This is the first instance in which the Portuguese have seen the Leeambye in the interior. The course of Pereira must be shifted northwards. He never visited the Barotse: so the son and companions of Santuru assert; and the event of the visit of a white man is such a remarkable affair among Africans, it could scarcely be forgotten in a century.

I have not, I am sorry to confess, discovered a healthy locality. The whole of the country of Sebituane is unhealthy. The current of the river is rapid as far as we went, and showed we must have been on an elevated table-land; yet the inundations cause fever to prevail very extensively. I am at a loss what to do, but will not give up the case as hopeless. Shame upon us missionaries if we are to be outdone by slave-traders! I met Arabs from Zanzibar, subjects of the Imaum of Muscat, who had been quite across the continent. They wrote Arabic fluently in my note-book, and boldly avowed that Mahomet was greatest of all the prophets.

At one time, as I mentioned above, I thought of going W. in company with the slave-traders from Katongo, but a variety of considerations induced me to decide on going alone. I think of Loanda, though the distance is greater, as preferable to Benguela, and as soon as the rains commence will try the route on horseback. Trees and rivers are reported, which would render travelling by means of a waggon impossible. The Portuguese are carried in hammocks hung on poles; two slaves carry a man. It does not look well.

I am sorry to say that the boers destroyed my celestial map, and thereby rendered it impossible for me to observe as many occultations as I had intended. I have observed very few; these I now send to Mr. Maclear, in order that he may verify my lunars. If I am not mistaken, we have placed our rivers, &c. about 2° of longitude too far E. Our waggon-stand, instead of being 26° E., is not more than 23° 50′ or 24°. It is probable that an error of my sextant, of which I was not aware, deranged the calculations of the gentleman who kindly undertook to examine them. I send many lunar observations too, and hope it may be convenient for Mr. Maclear to examine them, and let you know whether I am right or wrong in my calculations. The map prepared by Mr. Oswell and myself need not be altered yet. It is admirably well adapted for all we pretended to, viz. a guide to future investigators. In the enclosed sketch you will see I give no more than I saw. I took the bearings of every reach of the river, both in ascending and descending, and allowing for the variation of the compass (21° W.) reduced the sketch according to the latitudes and longitudes obtained by observations; I am not well satisfied

with the reduction. I have not been able to insert the islands, and other remarks which would convey information, as well as the form of the river; but you will see how nearly my sketch from actual observation agrees with our map from native information; and I shall send an unreduced sketch, in order that, if you wish it, a finer pen than mine may reduce it. The watch performs remarkably well, though deranged for some time by an unfortunate knock; I think it will yet do good service. If you know any one at Loanda on the W. coast, send me a thermometer, graduated to show the point of ebullition of water at different heights, but please remember not to lay out much on that which may be lost. I should like to ascertain the watershed of the E. and W. The continent seems to be an elevated table-land, sloping chiefly towards the E.

Sportsmen have still some work before them in the way of discovering all the fauna of Africa. This country abounds in game; and, beyond Barotse, the herds of large animals surpass anything I ever saw. Eilands and buffaloes, their tameness was shocking to me: 81 buffaloes defiled slowly before our fire one evening, and lions were impudent enough to roar at us. On the S. of the Chobe, where bushmen abound, they are very seldom heard: these brave fellows teach them better manners. My boatman informed me that he had seen an animal, with long wide spreading horns like an ox, called *liombikalela*—perhaps the modern bison; also another animal, which does not live in the water, but snorts like a hippopotamus, and is like that animal in size—it has a horn, and may be the Asiatic rhinoceros. And we passed some holes of a third animal, which burrows from the river inland, has short horns, and feeds only by night. I did not notice the burrows at the time of passing, but I give you the report as I got it. Sable antelopes abound, and so does the *nakong;* and there is a pretty little antelope on the Sesheké, called "*teeanyane,*" which seemed new to me. These animals did not lie in my line, so you must be content with this brief notice.

The birds are in great numbers on the river, and the sand-martins never leave it. We saw them in hundreds in mid-winter, and many beautiful new trees were interesting objects of observation; but I had perpetually to regret the absence of our friend Mr. Oswell. I had no one to share the pleasure which new objects impart, and, instead of pleasant conversation in the evenings, I had to endure the everlasting ranting of Makololo.

Believe me yours,
most affectionately,

DAVID LIVINGSTON.

Particulars of the Observations by which the several Longitudes are determined.

No. in List.	STATION.	No. of Sets of Lunars.	Calculated Results.	Longitude from Mean of Observations.
			° ′ ″	° ′ ″
5	Kobé station	1	24 52 0	24 52 0
6	Kamakama	1	24 49 0	
7	Fever Ponds	1	25 1 0	24 55 0
8	10 miles South of Hill Ngwa	1	24 26 0	24 26 0
9	Ngwa Hill	— occultation	24 13 36	24 13 36
12	Sekeletu's Town	1	23 30 15	
		1	23 49 0	23 50 9
		— occultation	23 52 21	
13	Sanshureh	1	23 48 30	
		Relative altitudes of Moon and Jupiter	24 17 30	
			24 13 0	24 6 20
			24 6 20	
23	Nariele	1	22 49 0	
		1	22 50 0	23 5 54
		occultation	23 7 32	
32	Confluence of the Londa with the Leeambyé	1	23 27 0	
		1	23 38 0	23 35 40
		1	23 42 0	

Extracts from a Letter addressed by Thomas Maclear, Esq., to Sir John Herschel.

Royal Observatory, Cape of Good Hope,
April 19th, 1854.

My dear Sir John,—By this day's mail for England I send to Lieut.-Colonel Steele the observations and the results from them made by Dr. Livingston for the geographical points along his route in 1853. By the last mail I forwarded to the same gentleman a despatch from Livingston, intended for the Royal Geographical Society.

Having reduced the observations, I can vouch for their correctness; they include four occultations.

The remarkable geographical fact is the existence of a very large river, which he navigated in canoes in the company of a horde of natives, from about lat. 18° 20′ to lat. 14° 11′.

I give you the latitudes and longitudes of the points where he observed for both, and the latitudes of all the points where he observed. A tracing of the river will also be ready in time for the post. One, on a large scale, has been sent to Colonel Steele, drawn by Livingston, but it will require a little correction as derived from my calculations.

Another remarkable fact is the detection of a Portuguese slave merchant's stockade. It was said that slave merchants in that quarter, and so far south, is new—in other words, the game is wearing out in the northern direction.

Where there is plenty of rank vegetation, heat, and moisture, you may conjecture that there is likely to be plenty of fever, and such is the case. Livingston has had the fever no less than eight times. At a spot a little south of the Chobe river the whole of his party was laid prostrate at one time; this spot he names the Fever Ponds.

At the date of his writing to me (Sept. 29, 1853) he was preparing for a push towards Loanda, on the west coast, thence to return to his late track through Londa, the capital of a powerful state down the Leeba. If spared to accomplish this, he will rip up and expose to the public an interesting section of this *terra incognita*.

In order to accomplish his task without personal anxiety, he sent his wife and family home to England last year. Such a man deserves every encouragement in the power of his country to grant. He has done that which few other travellers in Africa can boast of; he has fixed his geographical points with very great accuracy; and still he is only a poor missionary.

Yours, my dear Sir John, faithfully, T. M.

Table of Latitudes and Longitudes.

No. of Station.	Names, &c.	South Latitude.	East Longitude.
		° ′ ″	° ′ ″
1	Manakalouwe, or Unicorn Pass	22 55 52	
2	Lettoche Station	22 38 0	
3	Kanné Station	22 26 56	
4	Lotlakané, where the first palmyra trees occur (about 25 in number)	21 27 47	
5	Kobé Station	20 53 14	24 52 0
6	Kamakama. Hence the direction of travelling on the Mag. Med.	19 52 31	24 49 0
7	Fever Ponds. "Here all my people were prostrated with fever."	19 15 53	24 55 0
8	10 miles south of hill Ngwa	18 38 0	24 26 0
9	Ngwa Hill. (*Occultation* observed here.) Hill 300 feet high	18 27 50	24 13 36
10	Kandeley Valley. "A lovely valley," half a mile north of Hill	18 27 20	
11	Station east of Waggon Station of 1851, but in the same parallel	18 20 0	
12	Sekeletu's Town. The chief Sekeletu is the son of the late Sebituane. (Two *occultations* observed here.)	18 17 20	23 50 9
13	On the banks of the Sanshureh river	18 4 27	24 6 20
14	Station. At the Island of Mahonta the Chobe runs in Lat. 17° 58′	17 58 0	
15	Town of Sesheké. "Clouds prevented taking lunars here."	17 31 25	
16	Sekhosi's Town on the Zambeze, about 25 miles W. of the town of Sesheké	17 29 13	
17	Cataract of Nambwe	17 17 16	
18	Cataract of Bombwe	16 56 33	
19	Falls of Gonyé	16 38 50	
20	Seoori, sa Mei, or "Island of Water"	16 0 32	
21	Litofé, island and town of	15 55 2	
22	Loyela, south end of this island. Town of Mamochisané	15 27 30	
23	Naliele, or Nariele. Chief town of Barotse. (*Occultation.*)	15 24 17	23 5 54
24	Linangelo, old town of Santuru. Site nearly swallowed up	15 18 40	
25	Katongo, where the Portuguese slave merchant built his *stockade*	15 16 33	
26	Point of junction of the Mariele branch with the main stream	15 15 43	
27	Quando village	15 6 8	
28	Town of Libonta	14 59 0	
29	Island of Tongane	14 38 6	
30	Cowrie Island	14 20 5	
31	Confluence or junction of the Loeti with the main stream	14 19 0	
32	Confluence of the Leeba or Londa with the main river Leeambyé, the northernmost point reached up to the despatch of this communication ..	14 10 52	23 35 40

Notes to Dr. Livingston's Astronomical Observations for Geographical Positions. By Th. Maclear, Esq.

Station No. 1. "Manakalouwe, or Unicorn's Pass, or that of Parapora, which means the gurgling of water. The dry cover must have presented a different appearance when it got the latter name from what it does now. I think the term Unicorn (the former) refers to an insect having an erect tail. The station is about 6 miles N. of Bamangwato town, where I could not take observations in consequence of the people suffering from a severe drought. The rain-makers would have blamed me had they seen me directing instruments towards their field of labour."

No. 2. "Lettoche, about 18 miles N. of Manakalouwe Pass."

No. 3. "Kanné Station is about 12 miles N. of Lettoche."

No. 4. "Lotlakané Station is where the first Palmyra trees occur. There are about 25 of them, and we always find water near them. We lost a week on the way thither; the oxen ran away, and were five whole days without water. The general direction of the path from Kanné to Nchokotsa was N.N.W., and N.W. from Nchokotsa to Kobé."

No. 5. Kobé Station, where the observations were interrupted by clouds.

At Maila or Mayeelah, on the path between Kobé and Kamakama, there is a fine watering-place. Some observations were made here, but none for latitude were forwarded.—T. M.

No. 6. "Kamakama Station is important, inasmuch as there the course is altered, and thence we travel on the magnetic meridian."

No. 7. The Fever Ponds Station. "Here all my people were prostrated with fever."

Dr. Livingston's observations at this station bear evidence of the distressing and harassing circumstances in which he was placed. They are sufficient, however, to fix the position within the necessary limits of accuracy. —T. M.

No. 8 Station, 10 miles S. of hill Ngwa. "We now come to observations concerning which I feel greater interest, inasmuch as if I am right in my working (calculations), the whole of our last year's map will require a pretty considerable hitch to the W. Instead of 26° E., our waggon-stand was scarcely 24° E.; but I will give you a fair opportunity of judging. On the 14th of April, 1853, we were in sight of a hill, bearing nearly N. It is called by the Bushmen Ngwa, the name of a caterpillar, the entrails of which produce nearly the same effects as the virus received in dissection wounds. They arm their arrows with the poison. The hill is called Dowgha by the Bechuanas. As it is a singular feature in that flat country, I felt anxious to ascertain its longitude. It is about 300 feet high, formed of calcareous tufa hardened, and has no tsetze (the poisonous fly). Two small hills appear to the S.W. of it, and distant about 10 miles; these have no tsetze. Our path to our waggon-stand of last year lies so far W. of these hills that we did not see them. I am quite certain our waggon stand is at least a degree W. of Ngwa."

Livingston is correct. The cause of the discrepancy is stated at the end of these notes.—T. M.

No. 9. Hill Ngwa Station. Here he was so fortunate as to observe the occultation of 52 Geminorum (B. A. C., No. 2634) by the moon, wherefrom the position in longitude is deduced with great accuracy. He says,—"The Boers deprived me of my celestial map, one, by the way, which had been up the Niger, so I have to point out the particular star by signs (a sketch)." The Boers burned almost the whole of his property.—T. M.

No. 10 Station. "A most lovely valley, about half a mile N. of Ngwa or Dowgha, and called Kandeley."

No. 11. A station parallel to the waggon-stand of 1851-2, before mentioned.

He states that the observations at this station are deserving of little confidence, and assigns the reason. The altitudes for time appear to be good. These are retained.—T. M.

No. 12. Sekeletu's Town Station.—"At the island of Mahonta the river Chobe runs in latitude 17° 58′. Thence, after crossing the Chobe, we went N. in order to get clear of the lands flooded by the Chobe, until we came to our path to Sesheké. We then turned S.W. till we came to Sekeletu's town. Thus at Sekeletu's town we are about 3′ N. of our waggon-stand (of 1851), the bearing of which, from the town, is due S. 10° W."

Besides other observations, two occultations by the moon were observed at this station. The first, on the 9th of June, Dr. Livingston suspected to be the star K. Geminorum; but the occultation of that star happened, or should happen, 1h. 45m. later than the Sekeletu time he records. The next star I have examined is B. A. C., No. 2506. The difference in declination at the moment of disappearance should be 13′ 6″ nearly, and the Greenwich time of disappearance 6h. 9m. 49s., which gives 1h. 19m. only for the longitude of Sekeletu. Livingston expresses himself thus in explanation:—"The vapours prevented me from seeing the exact moment of occultation, but I am certain of it occurring within a few seconds of the time mentioned." He probably founds this opinion because of the apparent proximity of the star to the moon's limb, but owing to the difference in declination being rather less than six-sevenths of the moon's semi-diameter, the apparent approach to the moon's limb would be slow. I intend to investigate the circumstances of this occultation with greater attention than my time at present will permit me to bestow upon it.

But the other occultation observed at Sekeletu (that of Jupiter on the 17th of July) settles the longitude of the place within close limits, though rather unfavourably with respect to astronomical conditions, the difference in declination of the centres at the moment of observation being 13′ 50″·24. He observed the *first interior contact*: "the last glimpse of the outer edge of Jupiter was caught at the watch hour, 5h. 7m. 7s."

The vast superiority of occultations over lunar distances consists in this, viz., they are free from instrumental errors, the subservient, rather the collateral, condition common to both being an exact knowledge of the time at the place.—T. M.

No. 13. "Sanshureh River, a branch of the Chobe, at a large and well-known Baobab tree, and about 9 miles S. of an island in the Chobe, called Mahonta. The island will retain its name, whether inhabited as it is now or not. From it can be seen, at the distance of 30 or 40 miles, a ridge which runs in a N.E. or N.N.E. direction from the hill Ngwa, and determines the easting of the Chobe river in that quarter. This ridge, apparently 300 feet high, is the boundary of the Chobe's floods, and it guides the river into the Sesheké."

The lunar distance from Jupiter is more favourable for longitude than the distance from Antares. But the hill Ngwa fixes this place with tolerable accuracy.

No. 14. "At the island of Mahonta the Chobe runs in latitude 17° 58′."

No observations seem to have been made for longitude at this place, nor were they necessary, because it is only 6½ miles in latitude from Sanshureh.—T. M.

No. 15. Sesheké. "Clouds prevented me taking lunars here."

No. 16. "Sekhose's village on the Zambēsé, or, as the Aborigines universally name it, the Leeambyé, viz. *the River*. The village is about 25 miles W. of the town of Sesheké."

No. 17. Cataract of Nambwe.

No. 18. Cataract of Bombwe.

No. 19. Falls of Gonyé.

No. 20. Seoori sa Mei, or the Island of Water.

No. 21. Island and town of Litofé.

No. 22. South end of island Loyela, town of Mamochisané.

No. 23. Naliele, chief town of Borotse. There are two sets of lunar distances, and a nearly central occultation of Jupiter by the moon, for fixing this place in longitude. "The last glimpse of the outer edge of the planet was caught as it disappeared behind the dark limb of the moon." I have accordingly calculated the longitude from the first internal contact. The watch error is well known, consequently the longitude derived from the occultation should be an excellent determination.—T. M.

No. 24. "Linangelo, old town of Santuru; the site swallowed up by the iver except a few square yards. It is nearly the same latitude as the first apital of Santuru, and on this account I took the latitude."

No. 25. "Katongo, where the Portuguese slave-merchant built his stockade."

No. 26. "At the point where the branch Marele parts from the main stream to form the large island of Nariele or Naliele."

No. 27. "Quando village."

No. 28. "Town of Libonta."

No. 29. "Island of Tongane."

No. 30. Island of Cowrie. "The bank on which we landed to make the observations was of soft mud encircled by a slough, which prevented the boatmen from dispersing over the island as usual. Though they sat quietly near me, the presence of a number of men caused a vibration in the mercury. This circumstance, and its being too near noon to go elsewhere, made the observations less certain than the others. The confluence of the Loeti, with its light-coloured water, being almost 2 miles N. of the island, makes me regret the circumstances, for I had no other opportunity for observing so near the Loeti.

"I suppose the confluence of the Loeti with the main stream may be set down at lat. 14° 18′, or 14° 19′."

No. 32. "Confluence of the Leeba or Londa with the main river or Leeambye."

This was Dr. Livingston's northernmost station up to the date of this communication.—T. M.

General Remarks.

The table gives the observations and the results arranged in order of latitude northwards.

The earlier observations, which do not assist in the determination of positions, have been omitted; also a few where, either in the hurry when reading off the instrument, the wrong numbers were registered, or the right misplaced.

The watch error has in general been calculated from each altitude, mainly for a check upon the altitudes; and in taking the mean, each result depends upon the number of relative observations.

With respect to the occultations by the moon, that of Jupiter at Sekeletu receives the weight 10 in comparison with the lunar distances at that station; and that of Jupiter at Naliele, the weight 20 in comparison with the lunars at that station. The resulting determinations are placed in brackets. The former has the weight 10 only, because the path of Jupiter behind that of the moon is near the S. pole of the moon, and the time is great in proportion to the arc; whereas the path at Naliele is nearly central.

No. 12, 2nd set. The longitude is computed from the relative altitudes of the moon and Jupiter.

Dr. Livingston states in his communication, that he took a great many

observations at several places which he has not forwarded, thinking he had sent sufficient. Thus at Sekeletu he made seven separate sets, and at Sekhosi "others." These might alter the lunar distance results to a certain extent, but no practical advantage, except at Sekhosi, would be derived from them.

It will be perceived that the observations made on the present journey alter the longitude of the waggon-stand near Sekeletu, determined in the last, by a large amount, viz., from 26° E. of Greenwich to 23° 50′, the true position in longitude being 2° 10′ more westerly than was supposed. This correction will apply generally to all the positions S. of Sekeletu, including, it is presumed, even Lake Ngami.

In explanation: Dr. Livingston's sextant was injured by a fall on his journey in 1851, which broke one of the three attaching screws of the great mirror, and the mirror became loose, taking a position with respect to the plane of the instrument, according to the way in which the instrument was held. Upon examination of the observations, those only were adopted that appeared to be most accordant. Those rejected gave a less longitude.—T. M.

XX.—*Report on the Russian Caravan Trade with China.*

By Harry Parkes, Esq., F.R.G.S.

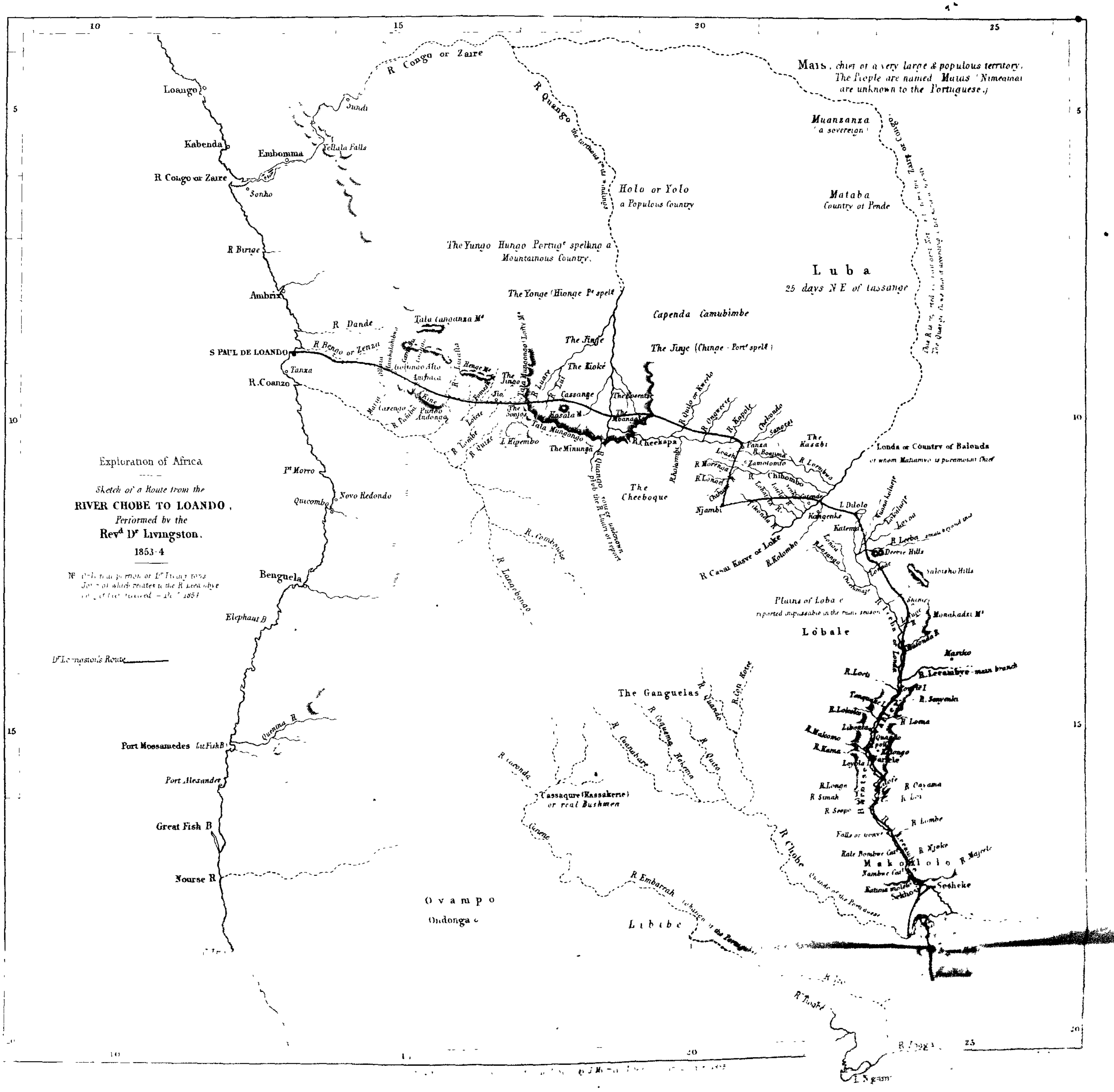
Read March 13, 1854.

Canton, from its position in the extreme south of the empire, can only be slightly influenced by a trade which is conducted on the Siberian frontier. None of the exports are drawn from this neighbourhood; and the few Russian goods that find their way here are seldom recognised as such by the consumers, but are vaguely spoken of by them as the productions of "the North."

It were superfluous to enter into any description of the towns of Kiakhta and Mae-mae-chin, which, being situated on their respective frontiers, and separated only by a barrier, form, as is well known, the seat of this commerce. The advantages of the position (lat. 50° 21′ N., and long. 106° 28′ E.) are more equalised than might appear from a first glance, which shows the former to be distant about 4000 miles from Moscow, and the latter not more than 1000 from Peking. But the longer journey can be performed, however slowly, by means of good water transportation; whilst the shorter one lies through dismal desert land, where fodder for the beasts of burden is sometimes unprocurable.

The inhabitants of either town are permitted free access to each other throughout the day, but a total separation during the hours of night is rigorously enforced. Those in Mae-mae-chin consist solely of parties engaged in the traffic, numbering altogether, it is said, about 1500 persons, and being under the superintendence of Manchu officers appointed from Peking. They belong chiefly to the northern provinces of Chile and Shense, and appear to continue in the trade for a series of years, going and returning with their goods, and never being allowed to take with them their wives or families. Many, or most of them, speak Russian, transformed, however, into a peculiar *patois* by the novelties of pronunciation which they have allowed themselves to introduce; and this jargon, strange as it may sound, appears to be extensively adopted by both parties in their ordinary oral communications.

Not only is the trade essentially one of barter, but the use of money is strictly interdicted. The value of all the commodities is fixed by Commissioners, appointed on either side, who are presided over by their respective authorities. These parties meet, and draw up regulations determining the price of every article of import, and of the tea to be given in exchange for it;



Exploration of Africa
Sketch of a Route from the
RIVER CHOBE TO LOANDO,
Performed by the
Revd Dr Livingston.
1853-4
Dr Livingston's Route
R Congo or Zaire
R Quango
Mais, chief of a very large & populous territory. The People are named Mutas (Nimeamai) are unknown to the Portuguese.
Muanzanza
a sovereign
Loango
Sundi
Kabenda
Embomma
Yellala Falls
R Congo or Zaire
Sonho
Holo or Yolo
a Populous Country
Mataba
Country of Pende
R Birige
The Yungo Hungo Portug^e spelling a
Mountainous Country.
Luba
25 days N E of Cassange
Ambrix
The Yonge (Hionge P^e spell)
Capenda Camubimbe
R Dande
Tala Canganza M^s
S PAUL DE LOANDO
R Bengo or Zenza
The Jinge
The Jinge (Chinge - Port^e spell)
The Kioké
Tanza
R.Coanzo
Ambaca
Cassange
Pungo Andongo
Kasala M.
Tala Mungongo
The Minunga
Cheekapa
The Kasabi
Londa or Country of Balonda
The Cheeboque
Njambi
Pt Morro
Quicombo
Novo Redondo
L. Dilolo
Katema
Kangenke
R Leeba
Dearie Hills
R Casai Kasye or Loke
R.Kolombo
Benguela
Plains of Lobale
Lobale
Elephant B
Monakadzi M^s
R.Leeambye - main branch
R.Lotembwa
The Ganguelas
R.Loeti
R.Lokalueje
R Loma
R.Makomo
R.Kama
Port Mossamedes
Port Alexander
Cassaqure (Kassakerie)
or real Bushmen
R.Longa
R Simah
R Seepe
R Cuanza
Great Fish B
R Lombe
R Njoko
R Majeele
Makololo
Sesheke
Nourse R
Ovampo
Ondonga
R Chobe
R Embarrah
Libebe
R Teoge
L Ngami

and not only the price of the tea, but the proportion of each sort to be bartered for the different articles. The Commissioners on the Chinese side would only be acting with the adroitness and artifice common to their nation if, as it is alleged, the arrangements they make for the conduct of the trade tell more to the advantage of their countrymen than to that of the Russians. That such is the case would appear from the circumstance of teas never remaining unsold at Mae-mae-chin; while Russian goods are often so depreciated in value as to wait until a second, or perhaps even a third year, for a market.

The arrival of the Chinese dealers with their teas at Mae-mae-chin is the signal for the commencement of the annual trade. The foremost of them appear in October; but as stocks must be received or the condition of the business of the season be known before the barter-rates can be determined, transactions are not immediately entered on, and the winter, or close of the year, becomes therefore the most active period of the trade, which is concluded with the return of spring.

IMPORTS.

Furs.—The demand on the part of the Chinese for furs from the Russian territories is limited, in a great measure, to those of inferior description: but this circumstance contributes greatly to the convenience of the Russian traders, as they thus obtain at Kiakhta a good market for their less valuable skins, which would not pay the cost of carriage from the coast of Siberia to European Russia. Squirrel and fox-skins, and the short curly lamb-skins of Astrachan, form by far the largest proportion of the peltry which they import. But although the Chinese purchase comparatively few of the valuable furs, such as those of the sable, marten, or others, they take considerable quantities of the tails and paws of these animals (which are carefully collected throughout Siberia expressly for the Kiakhta trade), and make from them those peculiar fur dresses, of patchwork-pattern, that may be seen so often in the North of China. The stocks forwarded to Canton, or the southern provinces, consist principally of young lamb and squirrel-skins, as these are suited, from their lightness, to the moderate cold of this part of the country. Skins and horns of the reindeer are also imported,—the latter, when soft, being much valued by the Chinese for their medicinal properties.

Woollens.—The importation of Russian woollens must be very large to supply the extensive demand which exists for them in the north and centre of China. The thick heavy kinds which the Chinese call "Hala," after the Russian name for wrappers or outside coverings, which are often made from cloths of this description, are chiefly in request, and are much used for cloaks and travelling dresses; those of red and green hues are also much esteemed, on account of the superior depth and brightness of these Russian colours. In length these cloths appear to vary from 20 to 30 yards, and in breadth from 62 to 64 inches. Of the other sorts of woollens received from Russia, many parcels are from Belgian or Saxon looms, and enjoy a good reputation among the Chinese on account of their thick soft texture and brilliant gloss.

Small parcels of Russian woollens are brought to Canton by the Teentsin junks, and by merchants from the northern provinces. But although the annual supply for this vicinity is limited, it is said, to 1000 or at most 2000 pieces, they meet the English goods at no great distance in the interior, and the result of the competition between these rival manufactures appears to be unfavourable to the latter. In Canton the average price of blue Russian cloth, the sort most largely imported, is $2\frac{1}{2}$ dollars per yard, but at Soochow the same may be purchased in Chinese shops for nearly a dollar less; whilst the cheaper black kinds fetch, at the same place, only 1·40 dollar, and the scarlet, from its being the most expensive colour, 1·80 dollar per yard.

As it would scarcely be possible for the Chinese to vend these cloths at

such cheap prices, unless they were furnished to them at rates as low or even lower than the cost of production, there can, it is presumed, be little doubt that the Russians, in the first instance, part with them at a loss, but are eventually remunerated by the high profits they are able to realize on teas.

On the other descriptions of piece-goods imported by the Russians, few remarks have to be offered. The cottons are described as resembling twills in texture, and are said to measure about 16 inches in breadth, and 25 to 30 yards in length; a cotton fabric of this description is much used by the Russians for towelling. Of their linen I have merely met with one specimen, which proved to be the production of a Pomeranian loom, and is only partly composed of flax; it is of stout but very inferior texture, measures 32 inches in breadth, and the pieces, say the Chinese, vary in length from 12 to 20 yards. Velveteens form no inconsiderable item of the Russian imports, but are not met with at Canton; and the camlets are known to be principally of Dutch manufacture.

Leather.—The buffalo and the morocco leather imported by the Russians is extensively used in the north of China. Of the former there are two kinds, the red and black, which serve for the manufacture of shoes, trunks, cushions, &c., &c.; the latter is worked up into a greater variety both of colours and sizes; the red, black, and green skins are preferred, and are used for the manufacture of purses, bags, and cases of all kinds. It is only in the form of these articles that Russian leather is seen at Canton, as the tanners of this place dress large supplies of a soft description well suited to the wants of the people, obtaining their raw material from the western province of Yunnan.

Furs and manufactures form doubtless the staple import commodities; but many other articles may also be enumerated. Such are works in tin, iron, steel, brass, copper, and lead. Iron pots, copper kettles, and brass-ware are largely supplied, both for the use of the Chinese and the Mongolian tribes, and brass washing-basins of Russian manufacture may often be seen in the north of China. Their fine soft iron is also in request, and is imported in the shape of small pigs or bars, weighing little more than a catty a-piece, packed in boxes each containing 130 or 140 pigs. One Chinese informant says that copper coins of a superior quality of metal are also imported as copper, meaning probably Russian kopecks, which are intrinsically worth the value they represent. The other articles of hardware are fire-arms, cutlery, padlocks, metal buttons, and apparatus for opium-smoking, consisting chiefly of long steel needles, but including, say some, the drug itself. Coral is sought for particularly by the Mongols, who use it profusely to decorate their saddles and girdles. Musical-boxes, watches, mirrors, ornaments, talc, soap, and other minor articles, complete the list of imports. But besides the wholesale dealings carried on with Europe, there are other transactions of a local or retail nature conducted for the express purpose of supplying the Chinese with the agricultural productions of the country beyond the Baikal, and consisting, on the side of the Russians, of imports of grain and cattle merely, whilst the Chinese goods received in return are suited only to the consumption of Siberia.

Exports.

Turning now to the export side of the trade, as that which chiefly interests the Russian merchant, since he has to look to his returns not only to bring him a profit, but to compensate him for the low valuation so often set on his goods at Kiakhta, we come at once to the most prominent commodity of the whole trade, tea.

Tea forms, as is well known, the principal article of the Kiakhta trade, and there appears no reason to doubt the general statement given by the Chinese that the Russians derive their teas from the same places that we do; viz., black teas principally from the province of Fuhkëen, and green teas chiefly

from that of Ganhweh. The merchants resorting to Hokow (in Keangse), the grand emporium for the teas from both those provinces, are divided into two general classes, severally termed, in common parlance, the Se Pang, or Western Company, and the Kwang Pang, or Canton Company. The former one is said to be by far the most numerous; and it is very probable that such is the case, as the merchants known under this name supply not only the Kiakhta trade, but also the northern and western provinces of China, and its wide spread colonies and dependencies in Mongolia, Turkestan, &c. It is also freely admitted that they purchase the finest qualities of tea, besides those of common or inferior description, forwarding the former to the markets of European Russia, and the latter, in the shape of brick tea, to Siberia, or the Mongolian steppes, the Kalmucks, or Kirghis Tartars, &c.

The superiority of the tea consumed in Russia to the generality of that imported into the United Kingdom may be accounted for by the circumstance of its being a more costly kind, unsuited on account of its expensiveness to our markets, where, if imported, it is only used to mix with or flavour other teas. Tea of similar quality, commonly known as "present tea," may be procured at Canton for 4 or 5 taels per catty. The Russians term the finer kinds which they procure "flower teas," and those of more ordinary description "leaf teas," and they are said to take the latter in the proportion of one to four of the former. It is known that tea is often purchased in Russia for 40 silver roubles per oka (about 2 guineas per pound English), and even in Germany, where less expensive kinds are consumed, 3 thalers per pound is considered a low price. For such teas in England there exists a very small demand; but were it otherwise it is doubtful whether they could be transported there by the ordinary long sea voyage, during which the tropics have twice to be crossed, without losing the delicate flavour which is preserved to them by the colder latitudes and land transit of Russia.

The accounts received of the amount of tea supplied to Russia vary considerably, though they agree in stating that the demand steadily increases, and it would seem indeed to have nearly doubled during the last ten or twelve years. The following brief estimate of the quantity exported during the last four years may serve to convey some idea of the present extent of the trade, but should be accepted with considerable reserve, as even an approximation to accuracy in respect to figures or quantities has been found unattainable in the course of these inquiries.

Table of Exports of Black Teas.

Year.	Quantity Exported.
	Chests.
1849	150,000
1850	98,000 133,000—according to another estimate.
1851	128,000
1852	210,000 250,000—according to another estimate.

It is known that these teas consist of congous and pekoes of fine quality, and although the proportions of each have not been ascertained, there is good reason to believe that the latter predominate. The size of the packages also admits of dispute, and the doubts on this point greatly increase the difficulty of estimating correctly the gross amount exported. One statement says that the chests average 50 catties in size, and 18 dollars in cost, which would nearly be equal to 25 taels per pecul; other informants speak of their

weighing 40, 60, and 90 catties; whilst a Russian account makes mention of 2½ poods, or 90 pounds English. The probability is, that the size of the packages varies according to the quality of their contents.

For green teas there appears to be but a limited demand; and it is said that a considerable portion of 36,000 packages, which were forwarded last year (1851) to Kiakhta, but arrived too late for the trade of the season, remained unsold, and reduced the supply for 1852 to 19,000 packages, 17,000 of which consisted of young hyson of superior quality. Another account says that the annual supply of this description of tea fluctuates between 25,000 and 40,000 packages, chiefly young hyson with imperial and gunpowder.

Brick tea is another very important item of the trade, and must be exported to a large amount, as it is as great a necessary of life to the Russian peasants, and to the Kalmucks of Astrachan, as it is to the nomades of Mongolia. At Kiakhta, where no coin is allowed to circulate between the Russians and the Chinese, it serves as the money unit, or standard of value, in which every other kind of exchangeable property is expressed. The practice of making tea into bricks, cakes, or tiles, as they are variously called, is common in all the provinces where tea is produced; and the quality of the tea when thus manufactured varies as greatly as the size or shape of the bricks. Those sent to Russia appear to average an oka (2¾ lbs.) in weight, but we also hear of variations in size, from 3 to 4 lbs., and in cost from 16 to 22 pence each. The only estimate rendered me of the sale of this article gives about 3,000,000 lbs. as the quantity received by the Russians at Kiakhta; but this calculation in all probability is greatly underrated, unless large supplies are forwarded across the western frontier of the Chinese dominions.

Taking 250,000 packages as a medium estimate of the supply of tea (inclusive of green) for 1852, and calculating these at an average weight of 60 lbs, and at a moderate value of 20 dollars each, and including also the above-mentioned quantity of brick tea, we shall have 18,000,000 lbs. as the total quantity of the Kiakhta sales, representing a value (in China) of 5,300,000 dollars.

An estimate so loosely formed as the above is, of course, not deserving of great reliance. But when we consider—after allowing for contraband importations *viâ* Hamburg—that the re-exports of tea from England to Russia do not probably amount to more than 2,000,000 lbs.,—that the taste for tea in that country, from the noble to the serf, has now become universal—and that its population is double that of England, which consumes annually more than 50,000,000 lbs., there are grounds for concluding that exaggeration forms no feature of the above calculation, and that its error lies rather in underrating than in over-estimating the extent and value of this unknown trade.

Chinese Manufactures.—Both silk and cotton piece-goods are exported by the Russians, but to a limited extent; and it would appear that late improvements in their own manufactures have had the effect of lessening the demand for Chinese silks and nankeens. Siberia, however, continues to purchase considerable quantities of these goods, especially the cotton fabrics, which on account of their great durability are suited to the wants of an unrefined population. The women of the better classes use two kinds of silken stuffs, which they call "kanfa" and "fan-sa." The former is the Twantsze or broad Nanking satin, and the latter the Fangsze, or closely-wove Hangchow silk. Of cotton cloths two sorts are supplied; they are called "Poo" and "Tsoo-poo" by the Chinese, and are known in Siberia as "Kitaika" and "Daba." They differ from each other in respect to quality only, both being calico of a strong description, and generally dyed blue, red, or some bright colour. The quantity entering into consumption it is impossible to estimate: one calculation gives 80,000 pieces only; whilst travellers speak of both silken and cotton goods being in general use through Siberia.

Rhubarb is mentioned as being largely exported, but the trade in it is said

to be a monopoly which rests in the hands of Bucharian merchants. The annual supply is said to be between 300,000 and 400,000 lbs. weight.

Sugar-candy is purchased by the Russians in limited quantities, and used by them as a sweetmeat. It is the produce of the cane of Fuhkëen, sent from thence by sea to Tëentsin, and so on to Peking.

No other staples remain to be enumerated, but mention may be made of the following sundries:—Wooden brown lacquer tea-cups of large size, intended for the use of brick teas—they wear well, and are quite capable of resisting the action of boiling water; crackers or fireworks of the same construction as those sold at Canton; Chinese ink, stationery, pictures, &c., the gaudy colours of which possess attractions in the cabins of Siberia; toys of all descriptions, blinds of split bamboo, vases, cups, &c., of nephrite, agate, chalcedony, and cornelian, figures of wood and bronze, porcelain, furniture, artificial flowers, colouring-matters, tobacco, dried fruits, sweetmeats, &c.

A few remarks on the carriage of the goods along the surprising route which is traversed by this trade may be deemed pertinent to the subject.

Teas, silks, and all other Chinese merchandise for the wholesale or direct Russian trade are first collected at Chang-kea-kow, or Kalgan, a large frontier city just within the great wall, where they often change hands before the final arrangements are made for carrying them across the desert to Kiakhta. The goods are transported either on the backs of camels or in small carts drawn by a single ox or bullock. The former animals, when laden with burdens not exceeding 300 catties (400 lbs.) in weight, require from 40 to 50 days to perform the journey between Kalgan and Kiakhta, estimated at 804 miles. Oxen take a longer time on the route, but probably convey the goods in a safer condition, as they seem generally to receive higher rates of remuneration. These rates, which vary considerably according to the scarcity of beasts or quantity of merchandise, range between 1½ and 3½ taels for 100 catties, say from 2 to 5 dollars for the whole distance between the above-mentioned places; but the average or most usual rate appears to be 2½ taels, or about 3½ dollars per 100 catties. The oxen are owned chiefly by Isakhar, and the camels by Mongol tribes; and the peaceful and profitable employment which is thus afforded to thousands of these nomades is not the least benefit that results from the trade.

The Russians transport nearly all the returns of the wholesale trade to Nijnei-Novgorod and Moscow, making use of both land and water communication. In the former case, sledges form the means of conveyance, and the best part of a year is commonly occupied in the journey, although choice teas and silks can be pushed on at an increased speed. By the latter route the waters of the Angari, Yennessei, Obi, and Irtish, serve alternately as far as Tumen; but owing to the shortness of the summers, delays are necessarily great, and goods thus forwarded are said to be sometimes 3 years on their way to the heart of European Russia.

The cost of conveyance westward is greatly increased by the chests of tea being packed in raw hides, to secure them against the damage they would otherwise sustain from constant exposure to concussion, and at times to moisture. It is only through countries circumstanced similarly to Russia, where the rates of remuneration are remarkably low both for man and beast, that bulky commodities, however valuable, could bear or repay so long and tedious a transit. The cost of transport from Kiakhta to Moscow is computed at 40*l.* sterling per ton weight, or 4½*d.* per lb; and if the means of making an accurate calculation were obtainable, it would probably be found that nearly the same expense is incurred in conveying the teas from the place of production in China to Mae-mae-chin. We have already seen that the transit across the desert between Kalgan and Kiakhta, a journey of 800 miles, costs, at a moderate calculation, 3½ dollars per pecul (100 catties), or say 1½*d.* per lb.

Now the distance from Kalgan to the N. of Fuhkëen, the province from which the Russians derive the largest portion of their teas, is about 1200 miles, or half as long again as the desert journey; and as the greater part of the transit through the provinces is also a land one, it may be concluded that the expenses amount to at least as much as those that are incurred between Kalgan and Kiakhta. Thus the expense of transport on the Chinese side may fairly be computed at 3½*d.* per lb., which, added to that of the Russian transit, gives a total of 7½*d.* as the cost of the carriage of each lb. of tea, from the place of its production to the central market of Russia. This amount, which forms, it will be seen, an inconsiderable addition to the value of fine teas, is of course exclusive of all dues or other charges, and is therefore only to be compared with the freight paid for shipping, which on tea to England varies from ½*d.* to 1¾*d.*, according as the rates range from 2*l.* to 6*l.* per measurement ton. The protective duty of 70 per cent. *ad valorem*, imposed in Russia on all teas imported from foreign countries, serves in some measure as an index to the costs which attach to the Kiakhta trade.

Little is to be observed on the other points of trade. Second to Kiakhta is that of Kokand and Bokhara. Russian caravans reach the former place both from Orenburg and Semipalatinsk, and are met there by Chinese merchants from Kashgar and Yarkand, in Chinese Turkestan, on which Kokand borders. Considerable quantities of skins cross the frontier from Bokhara, and are principally paid for in brick tea. There is also Tsuruchaiton on the Argun (to the E. of Kiakhta); but this place is not much frequented, and its trade consists of the usual interchange of brick tea, coarse blue and white Chinese cloths, and tobacco, for sheepskins, Russia leather, &c.

This imperfect glance at the Kiakhta trade suggests the conclusion that its importance to Russia is very considerable; not more, perhaps, in respect to the consumption of home manufactures, than in furnishing extensive sources of profit and employment to the Siberian settlements. The Russians, however, during the last two or three years have manifested a desire to open a trade on the seaboard of China, the advantage of which to European Russia would appear at first sight to be only procurable at the expense of the traffic now carried on at Kiakhta. But if, as there is reason to believe is the case, the mutual demand for tea and for Russian goods is steadily increasing, an extensive commerce, both inland and maritime, would not be incompatible; for, admitting that Western Russia might be supplied with tea more conveniently by sea, it is equally certain that the land route would continue to be the most serviceable one for its eastern dominions, and the one by which the furs, skins, and leather of the latter could more readily be forwarded to Mongolia and the North of China, where they are chiefly consumed.

The goods which the Russians import are well suited to the Chinese market; and owing to the peculiar system which regulates the Kiakhta trade, they can afford to dispose of them at very low rates; therefore these circumstances are alone sufficient to secure these imports the extensive circulation they command. But in the event of their being introduced into China by a maritime route, they would naturally have to enter under a wholly different system; the same, in short, as that under which the trade of other foreign nations should happen to be conducted, and would thus be brought into a fair and equal competition with the manufactures of England and other countries.

XXI.—*Summary of the last Census of Switzerland.* By Prof. Paul Chaix, of Geneva, Corresp. F.R.G.S.

Addressed to and communicated by the Secretary.

A census has been taken of the population of Switzerland, the result of which gives 888,860 Catholics, 1,300,338 Protestants, about 2900 Jews—in all 2,190,258 inhabitants; of these 55,000 were foreigners, or $\frac{1}{40}$ of the whole population. Several of the cantons have since published new accounts of their population; but a general census was never made until the month of March, 1850.

Extent, 1748 square leagues (the Swiss league is 4800 mètres long), or 730 German square miles of 15 to a degree, or 2030 French square leagues of 25 to a degree, or 11,695 geographical square miles of 60 to a degree.

The largest cantons are Grisons, 301 square leagues (Swiss); Bern, 294 square leagues; Valais, 192; Vaud, 145; Ticino, 128; and St. Gall, 87.

The smallest are, Zug, 10; Geneva, 12; Schaffhausen, 13; and Appenzell, 18 square leagues (Swiss).

Proportion of Sexes.—It is a fact known by all statists that, on account of the greater mortality of males, the total number of females in a census is greater than that of the males. In England the proportion was 106 females to 100 males in the census taken in 1841. There does not exist in Switzerland so great a surplus of females, the proportion being 102 to 100 males; they would even be brought to equal numbers if an exact table of the absentees were procured, and added to the actual number of inhabitants. It is only in the cantons of Vaud, Bâle-Campagne, Valais, and Bern, that the number of women is inferior to that of the men; an unexpected result, as a numerous military emigration takes place to Naples and other Italian states. In the other three cantons the result is caused by the absence of many girls who enter domestic service in the larger cities of Basel (Bâle), Geneva, and Neuchâtel: from which it is obvious that for the same reasons the census in the latter cantons shows a proportion of 110 women to 100 men. That proportion is even $111\frac{1}{2}$ to 100 in the aggregate cantons of Grisons and Ticino, on account of the number of absentees, 16,801 men against 5250 women. In the cities the numbers are most unequal, Geneva having 15,664 women to 13,441 men; Zurich, 8855 women to 8185 men; Friburg, 4804 women to 4261 men; and Soleure, 2997 women to 2373 men.

Family Condition.—While the number of married people is to the whole population as 31 to 100, the two largest cities, Basel and Geneva (*both Protestant*), show very different proportions, there being $\frac{34}{100}$ in Geneva, while there are $\frac{57}{100}$ only in Basel. The most hilly cantons (*all Catholics*) have a much smaller proportion of married inhabitants: Lucerne $\frac{23}{100}$, Zug $\frac{25}{100}$, Friburg $\frac{24}{100}$. This may be taken as the result of Catholicism and not of poverty, as the proportion is $\frac{43}{100}$ in Glaris, a canton placed under the same circumstances, *but a Protestant one.*

Political Condition.—Vagrant paupers or vagabonds have no claim to citizenship, are a great burden, and are often ejected from one territory to another.

The cantons had been directed to give an account of the number of political refugees living in their territory, but very few answered the call—some because they were not afflicted with that plague; others from reasons better known to their political leaders; while some of the accounts forwarded may be considered as flagrant forgeries (Geneva, for example, only 79).

Increase of Population.—The cantons where the rate of increase is the slowest are Glaris and Ticino, where it is checked by large emigrations.

Those in which the increase is most rapid are the following, which I give, together with the probable number of years in which the population may be doubled:—Basel, the city, 44 years; Neuchâtel, 47; Bâle-Campagne, 58; Appenzell, Inner Rhoden, 62; Zug, 67; Bern, 70; for the whole Confederation, 97 years; while in England the period would be 78; and in France, 118.

The laws affecting population, such as *births and deaths*, have been but partially studied, many cantons having long been under monkish rule, and very averse to anything like statistics. They have been the subject of a very clever paper, published a few years ago, on the population of Geneva, by Judge E. Mallet. It showed that in the *city* of Geneva the mean probable duration of life was $40\frac{6}{10}$ years at the age of 15; 37·5 years at the age of 20; 31·7 years at the age of 30; 28·8 years at the age of 40; 18 3 at the age of 50; 12·6 years at the age of 60; 8·3 years at 70; 5·2 years at 80; 3·7 years at 90; and 2·1 years at the age of 95: a pretty good proof of longevity, and superior (from the age of 30 upwards) to that in the more healthy canton of Vaud.

In the absence of more extensive materials, Mr. Franscini has made a total of 312,545 births, and 247,622 deaths, collected, I regret to say, from very limited periods, in the *état-civil* of 7 cantons (Thurgovia, St. Gall, Zurich, Soleure, Bern, Neuchâtel, and Geneva), and *exclusive of* 8676 *still-born*; which gives 127 births to 100 deaths. He has also, from a sum of 392,015 deaths collected in various cantons, made a table of mortality calculated on the number of 10,000 births.

Number of Survivors at the end of the

1st year . . . 7744	20th year. . . . 6360	45th year. . . . 4895	(Ditto in Geneva) (2473)
(Ditto in Geneva) (8787)	25th year. . . . 6100	50th year . . . 4542	75th year. . . . 1190
2nd year . . . 7363	30th year. . . . 5831	(50th, in Geneva) (4605)	80th year. . . . 538
3rd year . . . 7192	(30th, in Geneva) (6213)	55th year. . . . 4109	(Ditto in Geneva) (908)
4th year . . . 7072	35th year . . . 5541	60th year. . . . 3556	85th year. . . . 184
5th year . . . 6982	40th year. . . . 5230	(Ditto in Geneva) (3767)	90th year. . . . 32
10th year. . . . 6735	(40th, in Geneva) (5392)	65th year. . . . 2891	(Ditto in Geneva) (83)
(Ditto in Geneva) (7494)	43rd year . . . 5032	67th year. . . . 2590	95th year. . . . 1
15th year. . . . 6562	44th year. . . . 4964	70th year. . . . 2069	

[See Table, pp. 316, 317.]

Emigration.—This is not exactly known for the whole Confederation. The Protestant emigration is chiefly directed to the States of Illinois, Ohio, and Missouri, while the Catholics have formed settlements in Brazil and Algiers. From official accounts 919 persons, or $\frac{1}{32}$ part of the population, left the canton of Glaris in the 2 years 1845 and 1846. The mean annual emigration from the Grisons is $\frac{1}{250}$ of the population; $\frac{1}{500}$ in St. Gall; $\frac{1}{376}$ in Bern; $\frac{1}{730}$ in Argovia. The number is not exactly known for Bern; 9345, which I have inscribed for the absentees from that canton, being the result of returns of but the half of the parish, the other having made no returns. Some people think it might have reached double that number.

Foreigners.—The number of foreigners was, in 1837, 55,000, or $\frac{1}{40}$ of the population; from the last census it is 68,941 according to Mr. Franscini, and 70,804 according to my own observation, which is an increase from $\frac{1}{40}$ to $\frac{1}{34}$ of the population. It may be thought curious that there should be a difference of 1863 between us on such a matter-of-fact subject. My account is the sum of all the returns made by several cantons; they do not agree in one single case with those given by Mr. Franscini, chief of the Home department of the Confederation. How it happens that these numbers have all been *reduced* by going through the offices of our federal administration, is still more difficult to understand, than their silence respecting the number of political refugees in our country.

Religion.—The difference between the two religions is exactly the same

now as it was in 1837, viz., Catholics $40\frac{6}{10}$ per cent., Protestants $59\frac{4}{10}$ per cent. of the whole population; but the distribution has undergone important changes in the several cantons: thus, while the Protestants have undergone no increase in the Grisons, and a trifling one in Vaud and Neuchâtel, the Catholics, compared with what they were 14 years ago, are now 7 times more numerous in Zurich, $2\frac{1}{2}$ times in Bâle, 5 times in Schaffhausen, double in Vaud and Neuchâtel. In the Grisons they have increased from 32,455 to 38,039; in Geneva, from 22,000 to 29,764; while in this last canton the Protestant population has decreased from 36,666 to 34,212. Here the country is deserted by the old Protestant stock of the children of the land, disgusted with the present state of things; on the other hand, the gap is filled by the admission of numerous batches of Catholic foreigners to the rights of citizens. Judge Mallet has besides made it obvious, that without the large influx of Catholic foreigners the city of Calvin is doomed to contain, in a given number of years, a majority of Catholics, as, by earlier and more improvident marriages, the average result of each marriage is 4 children for the Catholics, and less than 3 for the Protestant population. By a similar process (the result of an isolated position), the city of Basel, another stronghold of Protestantism, is threatened with a change of population.

Jews are not yet allowed to reside in most of the Catholic cantons, and I even remember the time when their children could not be admitted into our public schools without much trouble.

Population of Towns.—In *Basel*, a city of great extent, it was only 15,040 in 1779, 14,778 in 1780, 16,674 in 1815, 21,219 in 1835, 22,199 in 1837, and was 27,313 in 1850. *St. Gall* had 5118 inhabitants in 1809; industry has made it 9430 in 1836, and 11,234 in 1850. *Zurich*, for the same reason, has advanced from 6439 in 1743, 8222 in 1792, and 6111 in 1810 to 8339 in 1836, 14,243 in 1837, and 17,040 in 1850. The population of *Bern* was only 11,191 in 1785, 16,378 in 1809, 22,422 in 1837, 25,158 in 1848, and 27,558 in 1850. *La Chaux-de-Fonds*, in the mountains of Neuchâtel, is another town raised by industry from 2643 inhabitants, in 1764, to 5703 in 1824, 6404 in 1830, 8481 in 1836, 11,713 in 1848, and 12,638 in 1850. That industry has spread to other parts of the same canton, such as the Vale of Travers, the Vale of Ruz, and especially the town of *Le Locle*. By the census of 1848 it was found there were 363 jewellers and 9067 watchmakers in the whole canton; and, in the following year, 195,795 watches were entered and assayed in the special offices. Although Lausanne is not a place of trade, its population has also risen from 8818 in 1798, to 14,126 in 1828, and 15,007 in 1836 (out-parishes included); it was 14,500 in 1850, besides 8136 in the out-parishes or *banlieue*. In Geneva the increase has been slower: in 1693, 16,111 inhabitants; in 1698, 16,934; in 1721, 20,781; in 1781, 24,810; in 1789, 26,140; in 1812 Napoleon rule had lowered it to 24,158; in 1822, 24,886; again, in 1828, 26,121; in 1834, 27,177; in 1837, 28,003; in 1843, 29,189. Then came the revolution of 1846, which put a stop to the increase, the population having been found to be 29,108 in 1850 within the walls. But a political measure decreed the levelling of the fortifications, and the addition of about 2000 inhabitants of suburban population, besides two other suburbs left outside; total, 36,618. The Catholic population is now 8717 only within the walls, having increased more than two-fold in 7 years, while the Protestant Genevese population is reduced to 13,398.

Before I dismiss the subject I am compelled to point out to you, Sir, numerous discrepancies:—1st. The sums of the populations under the heads of Sexes and Family Condition agree well together, but they do not agree with the sums given under their Political and Religious Condition. The so-called official figures, given by the member of the federal Home department, do not agree with the so-called official returns which I had before collected from most of the cantons,

Cantons.	POPULATION.							Political Condition.			
	Males.	Females.	Total.	Families.	Single.	Married.	Widows and Widowers	Citizens of the Canton.	Swiss settled from other Cantons.	Foreigners.	Vagrants.
Appenzell, Inner Rhoden.	5,350	5,922	11,272	2,629	6,774	3,740	758	10,653	299	74	24
Appenzell, Outer Rhoden.	21,786	21,835	43,621	12,457	24,431	16,006	3,184	39,929	3,116	474	2
Argovia . .	98,361	101,491	199,852	35,804	130,232	58,827	10,793	189,558	7,289	2,962	43
Basel City, (half Canton).	13,837	15,861	29,698	5,605	19,645	8,114	1,939	11,245	11,473	6,818	162
Basel Country District	24,075	23,810	47,885	8,561	30,195	14,920	2,770	39,044	7,021	1,727	38
Bern	230,054	228,171	458,225	87,409	292,966	139,140	26,119	433,108	18,163	6,763	191
Friburg . .	49,682	50,209	99,891	20,206	67,558	26,594	5,739	91,124	7,373	1,335	58
Geneva . .	30,795	33,351	64,146	15,275	37,991	21,409	4,746	39,756	9,141	14,928	107
Glaris . . .	14,660	15,553	30,213	7,197	17,599	10,684	1,930	28,969	978	248	18
Grisons. . .	42,750	47,125	89,895	20,156	55,468	27,637	6,790	84,477	3,228	2,190	1
Lucerne . .	66,468	66,375	132,843	22,572	95,191	30,611	7,041	128,051	4,196	589	10
Neuchâtel .	34,944	35,809	70,753	15,028	43,719	22,430	4,604	44,335	21,131	4,980	307
St. Gall . .	83,086	86,579	169,625	36,579	103,620	55,203	10,802	150,924	15,410	3,258	33
Schaffhausen	16,854	18,446	35,300	7,961	21,261	11,601	2,438	31,645	2,272	1,362	21
Schwytz . .	21,976	22,192	44,168	8,937	30,192	11,431	2,545	42,379	1,452	198	139
Soleure . .	34,564	35,110	69,674	13,593	45,827	19,710	4,137	64,044	4,652	933	45
Ticino . . .	55,568	62,191	117,759	24,697	73,950	35,591	8,218	109,422	517	7,834	13
Thurgovia .	43,840	45,068	88,908	16,832	52,741	30,326	5,841	81,220	5,748	1,902	38
Unterwald, Lower.	5,493	5,846	11,339	2,768	8,147	2,547	645	10,667	550	32	90
Unterwald, Upper.	6,625	7,174	13,799	2,932	9,799	3,100	900	12,982	676	20	121
Uri	7,030	7,475	14,505	2,855	10,081	3,526	898	13,626	666	40	173
Valais . . .	41,156	40,403	81,559	17,768	52,087	24,533	4,939	78,539	1,204	1,656	128
Vaud	101,202	98,383	199,585	44,304	116,820	68,969	13,786	177,038	17,215	5,293	39
Zug	8,732	8,729	17,461	3,210	12,132	4,318	1,011	14,923	2,301	106	153
Zurich . .	123,165	127,553	250,698	49,929	146,504	88,421	15,773	233,919	11,184	5,573	22
Total (from Mr. Franscini) . . .	1,181,911 or 49 per cent. of the whole population.	1,210,829 $\frac{51}{100}$	2,393,641 also 2,390,116, also 2,392,740, and other totals.	485,277 or 1 for 4·94 inhab.	1,504,958 or $\frac{63}{100}$ of the population.	739,423 or $\frac{31}{100}$	148,359 or $\frac{6}{100}$	2,161,590 or 90 per cent.	157,382 $\frac{4}{100}$	70,804 or according to Mr. Franscini 68,941. 3 per cent.	2,198 $\frac{1}{1000}$

Religion.			Total Increase of Population since 1837.	Mean Annual Increase.	Number of Inhabitants for 1 sq. league.	Absentees from Switzerland not included in the census.			Number of Land and House Owners.	Population of the Capitals of Cantons and other Towns.
Protest.	Catholics.	Jews.				Men.	Women	Total.		
42	11,230	..	1,476	1 for 92 of the population.	1508	199	44	243	1,509	Appenzell, 1516.
42,746	875	..	2,541	1 for 217	4194	485	129	614	5,743	Herisau, 8387. Trogen, 2611.
107,162	90,847	1560	17,097	1 ,, 145	3287	3,715	1,822	5,537	33,770	Aarau, 4659. Baden, 2745. Zofingen, 3559.
24,083	5,508	107	5,377	1 ,, 65	3841	422	91	513	2,104	Basel, 27,313.
38,818	9,052	15	6,782	1 ,, 85		940	483	1,423	9,129	Liestal, 3032.
403,693	54,044	488	50,388	1 ,, 103	1559	6,063	3,282	9,345	59,656	Bern, 27,558. Burgdorf, 3636. Bienne, 3462. Thun, 3379.
12,133	87,752	5	8,746	1 ,, 142	1387	1,134	399	1,533	18,477	Friburg, 9065. Morat, 1741. Bulle, 1833.
34,212	29,764	170	5,480	1 ,, 146	5173	1,094	524	1,618	7,088	Geneva, 29,108 within the walls. With its suburbs, 36,618; without, 31,238. Carouge, 4403.
26,281	3,932	..	865	1 ,, 445	975	2,046	1,066	3,112	5,059	Glaris, 4082.
51,855	38,039	1	5,389	1 ,, 194	299	7,390	2,752	10,142	20,901	Coire, 6183.
1,563	131,280	..	8,322	1 ,, 205	2460	1,177	251	1,428	13,646	Lucerne, 10,068.
64,952	5,570	231	12,137	1 ,, 69	2039	1,342	724	2,066	6,386	Neuchâtel, 7727. Locle, 8514. Chaux-de-Fonds, 12,638.
64,192	105,390	63	10,772	1 ,, 198	1932	3,404	1,501	4,905	25,015	St. Gall, 11,234. Rapperschwyl, 1984.
33,880	1,411	9	2,718	1 ,, 162	2654	1,067	439	1,506	6,262	Schaffhausen, 7700.
155	44,013	..	3,518	1 ,, 152	1004	737	157	894	5,994	Schwytz, 2414. Einsiedlen, 2897.
8,097	61,556	21	6,478	1 ,, 133	2124	1,359	527	1,886	11,907	Soleure, 5370.
50	117,707	2	3,836	1 ,, 392	920	9,411	2,498	11,909	20,874	Lugano, 5142. Locarno, 2676. Bellinzona, 1926.
66,984	21,921	3	4,784	1 ,, 235	2058	993	343	1,336	14,908	Frauenfeld, 3544.
12	11,327	..	1,136	1 ,, 124	690	245	19	264	1,446	Stanz, 1877.
16	13,783	..	1,431	1 ,, 113	945	254	21	275	2,328	Sarnen, 1999.
12	14,493	..	986	1 ,, 184	309	222	58	280	2,133	Altdorf, 2112.
463	81,096	..	4,969	1 ,, 207	424	767	197	964	31,640	Sion, 3516. St. Maurice, 1327.
192,235	6,962	388	15,993	1 ,, 156	1376	2,875	2,031	4,906	37,936	Lausanne, 14,500. Vevey, 5201. Yverdon, 3619. Morges, 3241. Nyon, 2471. Rolle, 1398
139	17,336	..	2,139	1 ,, 99	1680	219	52	271	2,085	Zug, 3302.
243,928	6,690	80	19,122	1 ,, 164	3499	4,136	1,259	5,395	36,353	Zurich, 17,040. Winterthur, 5341.
1,416,786	971,809	3146	203,383	1 for 144	1370	51,739	20,666	72,405	382,359	Total population of 155 towns and boroughs is 492,607. Population of the country districts is 1,896,133, or ¾ of the total population.
59 per cent.	40 per cent.	1 per cent.	or according to Mr. Franscini, 202,482.	average.	average.	or 71 per cent.	or 29 per cent.		or 79 per cent. of the number of families.	

tons, and from the Home department itself, through M. Franscini's kindness. The sums total at the bottom of columns would not agree with those given by M. Franscini, and I did not think it worth while to sum them up, some of the components being so uncertain. The foreign population was reduced by 1863 from a probable after-thought of the central boards—the political refugees not being taken into account. Besides this there are two very distinct censuses of the population of the canton of Valais: 1st, the one I have entered here upon M. Franscini's authority; 2nd, another showing a population of 83,812 instead of 81,559 or 81,527 (for M. Franscini gives both these numbers).

Having thus made two distinct sums, first of all the highest numbers, second of all the lowest estimates of the population of the several cantons, I have found the first not more than 2353 larger than the second.

XXII.—*Geographical List of Places with Two Names.*

To Dr. Norton Shaw.

Dear Sir,—I enclose the geographical list we spoke about; it contains such places only as are known in foreign languages by names differing from those we give to them in English, and was made solely with the object of enabling persons to find out what places those names stand for. It is no doubt true that a man who knows a foreign language will know the names of places in that language; but we often see such names as Siebenbürgen in English newspapers, and others still more mysterious appear on the title-pages of books. My intention has been to set down only such as could not readily be guessed at, though I found it sometimes difficult to draw the line. I have not put in Londres, Napoli, nor Lisboa; but Wien, Anvers, and Livorno should be there. Most of the names on the list are totally unlike those we know them by—as Ofen for Buda, and Abertawe for Swansea. When the same place has names in two foreign tongues not much unlike each other, one alone is given if the alphabetical order would bring the two near together, such as Ardel and Ardeal (names for Transylvania); but Erdel, a third name, is inserted, because it comes into a different page.

You must not expect critique nor completeness; the words are copied as I found them, and I had neither leisure nor opportunity to increase the list. I had no Magyar nor Bohemian geographies, which would have furnished a large number of words, many of the towns in Hungary and Bohemia having two names; the Servian and Polish names do but partially fill up the deficiency. I should have been glad to insert all the modern Latin names of places where books are printed, and many Greek towns which have names unlike those we give to them—sometimes two. The Polish, Servian, and Lettish lists are, I believe, more complete; the last will, I fear, be found too minutely full.

On the whole I have only furnished a nucleus, which I hope will gather bulk. What I have said will show where some deficiencies exist, and more will be found, together with some errors. I might have inserted a few American titles, such as Granite State, Crescent City, Empire State, but I do not know what they mean; and a few English places with two names, or new names, might be jotted down—as Plymouth Dock or Devonport, Market Jew or Marazion, and in Canada, York or Toronto.

I commit the list to you, to do with as you like. You will no doubt remember names that I have omitted; and I will ask you to strike your pen through any you may think superfluous.

Yours, truly,

Edwin Norris.

[*The Italic capital letters represent the dashed letters of the Polish and Lettish languages.*]

ABBREVIATIONS.

B. *Bohemian;* D. *Danish;* Fin. *Finnish;* Fr. *French;* G. *German;* It. *Italian;* Lat. *Latin;* Let. *Lettish;* Lit. *Lithuanian;* Mag. *Magyar;* Mol. *Moldavian;* P. *Polish;* Pers. *Persian;* S. *Servian;* Sans. *Sanskrit;* Sp. *Spanish;* T. *Turkish;* W. *Welsh.*

Aachen, G., Aix-la-Chapelle.
Aberdaugleddau, W., Milford Haven.
Abergwaun, W., Fishguard.
Aberhonddu, W., Brecon.
Abertawe, W., Swansea.
Aberteifi, W., Cardigan.
Achterwald, G., Ardennes forest.
Adselmuischa, Let., Grünewald in Courland.
Ahdama muischa, Let., Schwartzbeckhof in Livonia.
Ahdaschi, Let., Neuermühlen in Livonia.
Ahderkas muischa, Let., (1) Fistel, (2) Kurbis in Livonia.
Ahlainen, Fin., Hvittisbofjerd.
Ahrzeem, Let., Erkul in Livonia.
Ahster, Let., Poikern in Livonia.
Ahwenanna, Fin., Åland.
Ahwenkoski, Fin., Aborfors.
Aiskraukle, Let., Aschraden in Livonia.
Aiudu, Mol., Enyed.
Aiweekste, Let., the Ewst in Livonia.
Ajemistan, T., Persia.
Akbarabad, P., Agra.
Akkenshahkes muischa, Let., Klingenburg in Livonia.
Alba Græca, Lat., Belgrade; Griechisch Weissenburg.
Alba Julia, Lat., Weissenburg.
Alba Regia, Lat., Stuhlweissenburg.
Allohkene, Let., Marienburg in Livonia.
Alloje, Let., Allendorf in Livonia.
Alteene, Let., Helfrichshof in Livonia.
Amberes, Sp., Antwerp.
Andrinople, Fr., Adrianople.
Angermannland, G., Ingria.
Anvers, Fr., Antwerp.
Apolda mare, Mol., Grosspolden.
Appes muischa, Let., Hopfenhof in Livonia.
Apses basniza, Let., Lohdenhofsche Kirche in Livonia
Aquisgrana, It., Aix-la-Chapelle.
Aranyos-Gyéres, Mag., Frischmarkt.
Arauzyą, P., Orange.
Ardeal, or Ardelu, Mol., Transylvania.
Arnautlik, T., Albania.
Arnoż, S., Ehrenhausen (Stajershoj).
Arttijärwi, Fin., Artsjö.
Askainen, Fin., Wallnäs Kapell.
Athonu, Mol., Mount Athos.
Attes muischa, Let., Ottenhof in Livonia.
Augſchsemme, Let., Oberland, Oberlauzisch.
Augstrohse, Let., Hochrosen in Livonia.
Aumeistere, Let., Serbigal in Livonia.
Aunus, Fin., Olonetz.
Austrumasemme, Let., Easternland, i.e. Russia.
Azimabad, P., Patna.

Bach, T., Vienna.
Bag, S., Carloago in Croatia.
Bahnuhse, Let., Kudling in Livonia.
Baischekalns, Let., Friedrichshof in Livonia.
Balta basniza, Let., Strassdensche Kirche in Courland.
Bau-de-la-Roche, Fr., Steinthal.
Bandar, Pers. } "The port," Masulipa-
Bunder, Pers. } tam.
Banska Bistrica, S., Neusohl.
Bar, S., Antivari in Albania.
Bardiov, S. } Bartfield in Hungary.
Bardyjow, P. }
Barmana muischa, Let., Barsen in Livonia.
Basilea, It., Basle.
Battare, Let., Dalbingen in Courland.
Bayern, G., Bavaria.
Bebrine, Let., Bewern in Courland.
Bec, S. } Vienna.
Beci, Mol. }
Beemeru semme, Let., Bohemia.
Beerna muischa, Let., Lindenruhe in Livonia.
Bèla, S., (1) Resciutta (Furlano). (2) Dille in Hungary.
Bela Cèrkva, S., Weisskirchen in the Banat.
Belgradu, Mol., Karlsburg.
Bèli Kamen, S., Weissenfels in Carniola.
Bellaues muischa, Let., Kortenhof in Livonia.

Bẽlo More, S., Sea of Marmora.
Benatky, P., Venice.
Ber, S., Caraferia in Macedonia.
Bèrdo, S., Egg in Carniola.
Bèrno, S., Brünn in Moravia.
Białe morze, P., Sea of Marmora.
Bielsko, P., Bilitz in Silesia.
Bihrin̂g-a muischa, Let., Kolzen in Livonia.
Bik-s-era muischa, Let., Libien in Livonia.
Bik-ses muischa, Let., Wilkenpal in Livonia.
Bipontium, Lat., Zweybruck.
Birsha muischa, Let., Modon in Livonia.
Birta, Mol., Birthälm.
Bistrica, S., Windisch Feistritz, Stajershoj.
Bistrica (Banska), S., Neusohl in Hungary.
Bitom, P., Beuthen.
Blaju, Mol , Blasendorf.
Boci kotorskoj, S., Bocche di Cattaro.
Bodensee, G., Lake of Constance.
Bodu, Mol., Brenndorf.
Boghdan, T., Moldavia.
Bogdanska zemlja, S., Moldavia.
Bolesław, P., Bunzlau in Silesia.
Bolsan, S., Botzen in Tyrol.
Bor, S., Haid in Bohemia.
Bormana muischa, Let., Treppenhof in Livonia.
Bozcheh, T., Tenedos.
Branibor, P., Brandenburg.
Brantes muischa, Let., (1) Ixtermunde in Courland, (2) Horstenhof in Livonia.
Brașov, S., Brașovu, Mol., Kronstadt in Transylvania.
Breediķe muischa, Let., Pulkarn in Livonia.
Breeschu muischa, Let., (1) Wredenhof, (2) Palmhof, (3) Bresemois, all in Livonia.
Brente muischa, Let., Kockenberg in Livonia.
Brežči, S., Rann (Stajershoj).
Brixia, Lat., Brescia.
Brodnica, P., Strassburg in Prussia.
Brunnawa muischa, Let., Winzheim in Courland.
Brynbiga, W., Usk, in Monmouthshire.
Brzecisława, P., Presburg.
Bucuresci, Mol., Bukharest.
Buddenbroze, Let., Schuyenpahlen in Livonia.
Budisse, Fr., Bautzen.
Budzyń, P., Buda, Ofen.
Bukkaischa, Let., Fockenhof in Courland.
Bukkes muischa, Let., (1) Schnickern and Kuckern in Courland, (2) Suddenbach in Livonia.
Bukovac, S. } Lubeck.
Bukowiec, P. }
Burdigala, Lat., Bourdeaux.
Buzet, S., Pinguente in Istria.
Bydgoś-ć, P., Bromberg in Posen.
Bystrzyca (Bańska), P., Neusohl in Hungary.

Caerdydd, W., Cardiff.
Caergybi, W., Holyhead.
Caerlleon Gawr, W., Chester.
Calie, P., Cilli in Styria.
Čalokez, S., Schütt, isl. in Danube.
Calowiec, P., Klagenfurt.
Carigrad, S. } Constantinople.
Carogród, P. }
Castellgwent, W., Chepstow.
Castellnedd, W., Neath.
Castellnewydd ar Wysg, W., Newport in Monmouthshire.
Castellnewydd yn Emlyn, W., Newcastle in Caermarthenshire.
Cavtat, S., Ragusa Vecchia.
Ćedad, S., Cividale, Furl.
Čeh, S., Bohemia.
Celje, S., Cilli.
Cẽlovac, S., Klagenfurt.
Cetate di Baltá, Mol., Kokelburg.
Cevie, Mol., Herrmannstadt.
Cheb, P., Egre in Bohemia.
Chenna-pattanam, Tel., Madras.
Chernogor, S., Montenegro.
Chwaleńskie morze, P., Caspian Sea.
Cieszyn, P., Teschen in Silesia.
Cilgeran, W., Kilgerran in Pembrokeshire.
Cincu mare, Mol., Gross-schenk.
Cisa, P., Theiss.
Çisnádie, Mol., the Heltau.
Cluṣu, Mol., Klausenburg.
Cohalmu, Mol., Reps.
Complutum, Lat., Alcalá de Henares.
Copenhagen (Hafnia), D. Kiobenhavn.
Cotlea, Mol., Koscharowitz.
Cristian, Mol., Neustadt.
Cycowo, P., Wartenberg in Silesia.
Czczew, P., Dirschau, West Prussia.
Czechy, P., Bohemia.
Czudskie jezero, P., Lake Peipus.

Dabrowno, P., Guilguenburg in Silesia.
Dabrownik, Pol., Ragusa.
Dahnipillis, Let., Reval.
Dánskas, Lith., Danzig.
Daugawa, Let., the Dwina.
Daugawas grihwa, Let., Dünamünde.
Dehnane muischa, Let., Ilgen in Courland.

Derpt, or Derpsko, P., Dorpat.
Dèrvenik, S., Zirona, isl. Dalmatia.
Detwen muischa, Let., Ringenbach in Livonia.
Deutschland, G., Germany.
Dietenhofen, G., Thionville.
Digganawe, Let., Dubena in Courland.
Dornick, G., Tournay.
Drač, S., Durazzo.
Dreliņģes muischa, Let., Badenhof in Livonia.
Drustes muischa, Let., Drostenhof in Livonia.
Dsehrbene, Let., Serben in Livonia.
Dsehrwu muischa, Let., (1) Anzinischek in Courland, (2) Dsehrwen.
Dselsenams, Let., Eiserhammer im Buschhöffchen, Courland.
Durrezeem, Let., Selgerben in Courland.
Dubrovnik, S., Ragusa.
Dukera muischa, Let., Puderkül in Livonia.
Dunaj, P., Danube.
Duntes muischa, Let., Ruhtern in Livonia.
Dwumosty, P., Deuxponts, Zweybruck.
Dzialdów, P., Soldau in E. Prussia.
Dźwina, P., the Dwina.

Ebberte, Let., Lügen in Livonia.
Ebergocz, Mag., Börgetz.
Ebesfalva, Mag., Elizabethstadt, Transylvania.
Eboracum, Lat., York.
Eerikes muischa, Let., Ramozki in Livonia.
Egerbegy, Mag., Erlenmarkt.
Ehwele, Let., Wohlfahrt in Livonia.
Eikene, Let., Heidekenhof in Livonia.
Eikes muischa, Let., Ilsenburg in Courland.
Elhiu, Mol., Heldesdorf.
Elsass, G., Alsace.
Engelart muischa, Let., Henselshof in Livonia.
Erdelj, S., Transylvania.
Èršava, S. Orsova.
Ersek Ujvar, Mag., Neuhäusel.
Escaut, Fr., the Scheldt.
Esten, name formerly given to the Prussians Proper by North Germans. (See Voigt, vol. i. p. 300.)
Estendil, T., Tino.
Etsch, G., the Adige.
Eugubium, Lat., Gubbio.

Fejervar, Mag., Weissenburg.
Feldiórà, Mol., Marienburg.
Fenni, W., Abergavenny.
Fertö, Mag., Neusiedler See.
Filemenk, Turk., Holland, *i.e.* Fleming.
Firenze, It., Florence.
Fôn, W., Anglesea.

Gaides muischa, Let., Waidau in Livonia.
Garrkalni, Let., Langenbergen in Livonia.
Gattiņi, Let., Gartensee in Courland.
Gauja, Let., river Aa.
Gaujas muischa, Let., Aahof in Livonia.
Gaujes muischa, Let., Sinolen in Livonia.
Gaujene, Let., Adsel in Livonia.
Gdansk, S., Gdańsko, P., Danzig.
Gelli, Wel., Hay in Brecknockshire.
Genf, G., Geneva.
Ghimbavu, Mol., Weidenbach.
Ghimbășelu, the river Weidenbach.
Grigiņi muischa, Let., Ruzki in Livonia.
Gjurgjevac, S., St. George in Croatia.
Gjyr, S., Raab.
Glinzes muischa, Let., Katharinenhof in Livonia.
Gohstiņ muischa, Let., Trentelberg in Livonia.
Granta, Lat., Cambridge.
Grasscha muischa, Let., Altgeistershof in Livonia.
Graubunden, G., Grisons.
Grihwes basniza, Lit., Ewstkirche in Livonia.
Gruž, S., Gravosa, a port in Ragusa.
Guddu semme, Let., Ukraine, White Russia.
Gulbene, Let., Schwanenburg in Livonia.
Gwrecsam, W., Wrexham.

Haie, Fr., the Hague.
Hailuoto, Fin., Carlö.
Halič, S. Gatsch in Poland.
Häme, Fin., Tavastland.
Hämeenkyra, Fin., Tavastkyrö.
Hämeenlinna, Fin., Tavasthuus.
Hamina, Fin., Friedrikshamn.
Hartola, Fin., Gustaf Adolf Socken.
Heb, S., Eger in Bohemia.
Helsinki, Fin., Helsingfors.
Hertogenbosch, Dut., Bois-le-duc.
Hèrvat, S., Croat.
Hochburgund, G., Franche Comté.
Hranice, S., Weisskirch in Bohemia.
Htetovo, S., Kalkandelen in Bulgaria.
Hvalinsko more, S., Caspian Sea.
Hvar, S., Lesina in Dalmatia.
Hwlffordd, Wel., Haverfordwest.

Jadar, S., the Salona.
Jahna basniza, Let., Altradische Kirche in Courland.

Jakin, S., Ancona.
Jalsova, S., Elesch in Lower Hungary.
Jaşi, Mol., Jassy.
Jaukarte muischa, Let., Puickel in Livonia.
Jauna muischa, Let., (1) Neuhof in Livonia, (2) Sternhof in ditto, (3) Frauenthal in ditto.
—— Jelgawa, Let., Neu Mitau, Neustädtchen, or Friedrickstadt.
—— Saules muischa, Let., Neurahdin in Courland.
—— Seltiņa, Let., Karlsberg in Livonia.
Jaunaspils, Let., Jürgensburg in Livonia.
Jaunauzas, Let., Neuanz in Courland.
Jaunpagaste, Let., Neuwacken in Courland.
Jaunpils, Let., Neuenburg in Courland.
Jaworz, P., Jauer in Silesia.
Ibajfalèu, Mol., Ebesfalva, Mag., Elizabethstadt in Transylvania.
Jegar, S., Erlau in Hungary.
Jehangir-nagar, Pers., Sans., Dacca.
Jehkaba meests, Let., Jacobstadt in Courland.
Jehrze, Let., Neu-Wohlfahrt in Livonia.
Jelawa, P., Eylau.
Jelgawa, Let., Mitau, or Leela Jelgawa, Great Mitau.
Jerre muischa, Let., Seyersdorf in Livonia.
Iggati-s-ch, Let., Idsel in Livonia.
Iggaunu semme, Let., Esthonia.
Ihsera muischa, Let., Marzen in Livonia.
Ilawa, P., Eylau.
Ilberta muischa, Let., Adamshof in Livonia.
Ilbranta basniza, Let., Berstelsche Kirche in Courland.
Il-g-e muischa, Let., Ilsen in Courland.
Ilmajoki, Fin., Ilmola.
Il-s-uma muischa, Let., Petendorf in Courland.
Inflanty, P., Livonia.
Instruč, P., Insterburg in Prussia.
Intschu kalns, Let., Hirzenberg in Livonia.
Ioensuu, Fin., Ny Carleby.
Ipava, S., Wippach in Carniola.
Ir-s-ches muischa, Let., Dubinski in Livonia.
Ir-s-chu muischa, Let., Hirschhof in Livonia.
Islamabad, P., Chittagong.
Isokyrö, Fin., Storkyrö.
Jehangir-nagar, P.S., Dacca.
Jugla, Let., Stoppinshof, or Jägelshof, in Livonia.
Juutinraumo, Fin., the Sound.
Juwanpitäjä, Fin., Jockas.
Iztok, S., the Levant.

Kahrkle muischa, Let., Neugeistershof in Livonia.
Kahrtu-s-che, Let., Schöneick in Livonia.
Kainunmaa, Fin., East Bothnia.
Käkisalmi, Fin., Kexholm.
Kalka rags, Let., Domsnest in Courland.
Kalna muischa, Let., Berghof in Courland.
———— name of several towns in Courland.
———— Greesten in Livonia.
———— Maykendorf in Livonia.
Kämerich, G., Cambray.
Kamnik, S., Stein in Carniola.
Kangers, Let., Sonsel hills in Livonia.
Kapi, Mag., Ranitzdorf.
Karalauczus, Lit., Königsburg.
Karasztos, Mag., Pakselten.
Karijoki, Fin., Bötom.
Karlowiec, P., Karlstadt.
Karniow, P., Jägerndorf in Silesia.
Kärnthen, G., Carinthia.
Kasi, or Kashi, S., Benares.
Kattiwer, Let., Kadfer in Livonia.
Kaunissaari, Fin., Fagerö.
Kehtschu muischa, Let., Fossenberg in Livonia.
Kellokoski, Fin., Mariäfors.
Kèrf, S., Corfu.
Kèrk, S., Veglia in Istria.
Kèrkonosc, S., Riesengebirge in Bohemia.
Kèrško, S., Gurkfeld in Carniola.
Kippene, Let., Eeck in Livonia.
Kirkaue muischa, Let., Witwenhof in Courland.
Kis, Mag., little.
Kisag (i. e. Koszeg), S., Güns in Hungary.
Kisbel muischa, Let., Kipsal, or Rammenhof in Livonia.
Kis Csür, Mag., Kleinscheurn.
Kis Disznód, M., Michelsberg.
Kisfalu, M., Kleindorfl.
Kis Iblya, M., Giesshübl.
Kis Ludas, M., *idem.*
Kis Marton, M., Eisenstadt.
Kis Szeben, M., Zeben.
Kis Szent Michal, M., Klein Petersdorf.
Kis Torony, M., Stephendorf.
Kis Ujfalu, M., Wappendorf.
Kis Zalatna, M., Kleinschatten.
Kitai, Slav., China.
Kiwikirkko, Fin., Messuby.
Klaypeda, Kleypeda, P., and Klaipede, Let., Memel.
Kli-g-g-en muischa, Let., Gustavsberg in Livonia.

Kneedi ņa muischa, Let., Kaltenbrunn in Livonia.
Koblice, S., Coblentz.
Kočevje, S., Gottschee in Carniola.
Kodanj, S., Copenhagen.
Köhalom, Mag., Reps in Transylvania; Steinberg in Hungary.
Koh-s-chkula muischa, Let., Ostrominski in Livonia.
Koiwisto, Fin., Björkö.
Koiwusaari, Fin., Björkö.
Koiwulah-l-i, Fin., Qveflax.
Kokkola, Fr., Gamla Carleby.
Kölln, G., Cologne.
Kollosvar, Mag., Klosing.
Kolocĕp, S., Calamota, island of Dalmatia.
Kološvar, S., Klausenburg in Transylvania.
Komárom, Mag., Comorn.
Kopar, S., Capo d'Istria.
Koplawa, Let., Born in Courland.
Korkiakoski, Fin., Högfors.
Kornette muischa, Let., Schreibershof in Livonia.
Koruška, S., Carinthia.
Kościerzyna, P., Berent near Dantzig.
Kosovo, S., Amselfeld.
Koszeg, Mag., Güns.
Koszyce, P., Kauen.
Kotlea, Mol., Zeyden.
Kovácsi, Mag., Koscharowitz.
Krain, G., Carniola.
Kraljevac, S., Königsberg in Prussia.
Kraljevica, S., Porto rè in Croatia.
Kralovedvor, S., Königinhof in Bohemia.
Kraukla muischa, Let., Grawendahl in Livonia.
Kreewini, Let., peasantry of Alt and Neurahdisch, who speak an Esthonian dialect; a Russian colony from Esthonia.
Kreewn semme, Let., Russia.
Kreezum muischa, Let., Ruschendorf in Livonia.
Kri-s-chana muischa, Let., Zohden in Courland.
Krolewiec, P., Konigsburg.
Krusto kalni, Let., Laudon Hills in Livonia.
Krustapils, Let., Neuhausen in Livonia.
Kuhri, Let., the old Courlanders.
Kuje muischa, Let., Engelhardshof in Livonia.
Kur semme, Let.. Courland.
Kurkijoki, Fin., Kronoborg.
Kustanus, Fin., Gustafadolfs, Socken.
Kuurinmaa, Fin., Courland.
Kwidzin, Pol., Marienwerder.

Laba, S., the Elbe.
Labin, S., Albona in Istria.
Laczeene, Let., Oppenkeln in Livonia.
Lahsber ģe, Let., Fianden in Livonia.
Lak-s-ches muischa, Let., Nachtigal in Livonia.
Laukā, Sans., Ceylon.
Lappeenranta, Fin., Willmanstrand.
Laško Mĕsto, S., Tuffer.
Lastove, S., Lagosta in Dalmatia.
Latwee-s-chu semme, Let., Lettland.
Lauku muischa, Let., Feldhof; name of several places.
Lausitz, G., Lusatia in Saxony.
Lavov, S., Lemberg in Gallicia.
Ledec, S.. Laatz in Bohemia.
Leela muischa, Let., Essenhof in Livonia.
Leepaja, Let., Liban in Courland.
Leepuppe, Let., Pernigel kirche in Livonia.
Leetawa, Let, Lithuania.
Leh, Turk. and S., Poland.
Lehtisalo, Lehtisaari, Fin., Löfö.
Leijas muischa, Let., Aahof in Schwanenburg, Livonia.
Leijas-s-kanste, Let., Dünamündeschanze in Livonia.
Leimanna muischa, Let., Nervensberg in Livonia.
Leman, lake of Geneva.
Lemberg, G., Leopol.
Lemi, Fin., Klemis.
Leov, Mol., Lemberg.
Leš, S., Alessio in Albania.
Leska, S., Poland.
Levoča, S., Leutschau in Lower Hungary.
Liberk, S., Reichenberg in Bohemia.
Liefland, G., Livonia.
Lieksa, Fin., Riclis.
Lieto, Fin., Lerndä.
Lihku muischa, Let., Stabliten in Courland.
Lihwi, Let.; the old Livonians, now used to designate the Angerschen peasants on the Strand, who speak a dialect of Esthonian.
Livorno, It., Leghorn.
Ljubljana, S., Laybach.
Llanandreas, W., Presteign.
Llanelwy, W., St. Asaph.
Llanfairmuallt, W., Builth.
Llanllieni, W., Leominster.
Llanymddyfri, W., Landovery.
Llanyrgain, Northop.
Lohberga muischa, Let., Blumbergshof in Livonia.
Lohdes muischa, Let., Laizeem in Livonia.
Lohdus muischa, Let., Thielen, Livonia.

Loket, S., Lokiet, P., Elbogen in Bohemia.
Lopud, S., Isola di mezzo, Dalmatia.
Lothringen, G., Lorraine.
Lotwa, P., Lettland.
Louhisaari, Fin., Willnäs.
Löwen, G., Louvain.
Loż, S., Laas in Carniola.
Lubliana, P., Laybach.
Lubow, P., Mecklenburg.
Lugdunum, Lat., Lyons.
Lugdunum Batavorum, Lat., Leyden.
Luoto, Fin., Carlö.
Lutetia, Lat., Paris.
Lüttich, G., Liège.
Lützelburg, G., Luxembourg.
Lwow, P., Leopol, Lemberg.

Maalahti, Fin., Malox.
Maddaleenas muischa, Let., Sissegal in Livonia.
Maesyfed, W., Radnor.
Magérusu, Mol., Nussbach.
Maklu muischa, Lit., Zinolen in Livonia.
Mahlpille, Let., Leemburg in Livonia.
Mähren, G., Moravia.
Majár vilayet, Tur., Hungary.
Malbrok, P., Marienburg.
Malines, Fr., Mechlin.
Man-aw, W., Isle of Man.
Manģelamuischa, Let., (1) Magnushof, (2) Altenwoga in Livonia.
Maskali, Let., Muscovite.
Meibohme, Let., Winterfeld in Livonia.
Meģdes muischa, Let., Idsel in Livonia.
Meģela muischa, Let., Sinölen in Livonia.
Mennigr muischa, Let., Orrenhof in Livonia.
Merenkurkku, Fin , Qvarken.
Merikarwia, Fin., Sastmola.
Mescha muischa, Let., Grenzhof, Buschhof, Courland.
Miedzychod, P., Birnbaum.
Mitkela basniza, Let., Baldonsche Kirche in Courland.
Mikulov, S., Nikolsburg in Moravia.
Mirna, S., Neudegg in Carniola.
Miškovac, S., Mistolz in Hungary.
Misnica, S., Meissen.
Misr, Turk., Egypt.
Mletci, Lev., Venice.
Mokronog, S., Nassenfuss in Carniola.
Mon, W., Anglesey.
Morganwg, W., Glamorgan.
Mosonj, S., Wieselburg in Hungary.
Multany, P., Moldavia.
Mümpelgard, G., Montbéliard.
München, G., Munich.
Munjava, S., Josephsthal in Croatia.
Mustasaari, Fin., Wasa.
Mustio, Fin., Svartö.
Muzsai, Mag., Manschein.
Mynämäki, Fin., Wirmå.
Mynnau, W., the Alps.
Mynwe, W., Monmouth.

Nagy Banya, Mag., Neustadt.
Nagy Csür, M., Gross Scheurn.
Nagy Disznód, M., Heltau.
Nagy Enyed, M., Strassburg.
Nagyfalu, M., Magersdorf.
Nagy Györ, M., Raab.
Nagy Levárd, M., Gross Scheurn.
Nagy Mártony, M., Mattersdorf.
Nagy Mihály, M., Gross Petersdorf.
Nagy Sink, M., Gross Schenk.
Nagy Szeben, M., Hermannstadt.
Nagy Szombat, M., Tyrnau.
Nagy Szolös, M., Gross Alisch.
Nagy Varad, M., Gross Wardein.
Namalis, Namana, Let., Memel River.
Nemcheh vilayeti, Turk., Germany.
Német ujvár, Mag., Giessingen.
Nemmums, Nemmus, Let., Memel River, which joins the Muuss at Bauske, Courland.
Nerzeja, P., the Nährung near Danzig.
Niemce, P., Germany.
Niemien, P., the River Memel.
Nihtaure, Let., Nitau in Livonia.
Nihza, Let., Niederbartau in Courland.
Nin, S., Nona in Dalmatia.
Nitawa, P., Mitau.
Nocrih, Mol., Leschkirch.
Nova Banya, S., Königsberg in Hungary.
Novi, S., Castelnuovo in Bocche di Cattaro.
Nummi, Fin., St. Carins.
Nyerges Újfalu, Mag., Neudorf.

Odorhei, Mol., Udvarhely, Oderheg.
Odsinj, S., Dulcigno in Albania.
Oesterreich, G., Austria.
Ofen, G., Buda.
Oglaj, S., Aquileia.
Ogrze, P., the Egre.
Ohsol muischa, Let., Eckendorf in Courland.
— Eckhof bey Mitau in Courland.
— Apsenau in Livonia.
— Lappier in Livonia.
— Eckau in Livonia.
Olanti, Fin , Åland.
Olesnica, P., Oels in Cracovia.
Olomunice, P., Olmutz in Moravia.
Olsztyn, P., Allenstein in Germany.
Olsztynek, P., Hohenstein in Prussia.
Oltu, the Alt River.

Omiš, S., Almissa in Dalmatia.
Onolsbac, Fr., Anspach.
Opava, S., Oppava, P., Troppau.
Optuj, S., Pettau.
Orèscie, Mol., Bros.
Ormian, P., Armenian.
Ormuś, Ormož, S., Friedau.
Osetyniec, P., Ostiac.
Ostrogon, S., Gran in Hungary.
Ostsee, G., the Baltic.
Ötevény, Mag., Hochstrass.
Oulu, Fin., Uleåborg.

Pähkinälinna, Fin., Nöteburg.
Pahtes muischa, Let., Sepkul in Livonia.
Pahpene, Let., Rosenblatt in Livonia.
Patkele, Let., Gilsen in Livonia.
Patkeles muischa, Let., Hohenheide in Livonia.
Pazin, S., Mitterburg in Istria.
Pec, S., city of Rumelia.
Pecs, Mag., Fünfkirchen.
Pecúh, or Pecuj, S., Fünfkirchen.
Pehsaka muischa, Let., Lambertshof in Livonia.
Pehtume, Let., Petendorf in Courland.
Pelsócz, Mag., Pleschnitz.
Penfro, W., Pembroke.
Penwyth, W., the Land's End.
Penybont, W., Bridgend.
Perenye, Mag., Brünnensdorf.
Pergelin, Mag., Pilgersdorf.
Perőcseny, M., Pilsen.
Pervány, M., Kleinmetschen.
Pfalz, G., Palatinate.
Pfirt, G., La Ferette.
Pietari, Piiteri, Fin., Petersburg.
Pietarsaari, Fin., Jacobstadt.
— Pedersöre.
Pila, Mag., Polisch.
Pila, P., Schneidemühl.
Pinnu Semme, Let., Finland.
Pintains, Let.—half Lett, half Finn.
Plahtera, Let., Weissensee in Livonia.
— Moisekull in Livonia.
Plaisance, Fr., Piacenza.
Plawas muischa, Let., Aahof in Livonia.
Plomin, S., Fianona in Istria.
Plovdin, S., Filippopoli in Greece.
Podhragya, Mag., Plotzenstein.
Poestelke, Mag., Puschendorf.
Pohdu muischa, Let., Ixtrum im Eckauschen in Courland.
Pohjanmaa, Fin., East Bothnia.
Pojonu, Mol., Pressburg.
Pont-y-fôn, W., Cowbridge.
Pont y ty pridd, W., Newbridge.
Poprád, Mag., Deutschendorf.
Pordány, Mag., Brodersdorf.
Pordó, Mag., Bernau.
Pori, Fin., Björneborg.
Posfalva, Mag., Poschendorf.
Posony, Mag., Pressburg.
Posöny, Mag., Bädersdorf, Pódersdorf.
Postes muischa, Let., Klauenstein in Livonia.
Prayāga, S., Allahabad.
Predjama, S., Luegg in Carniola.
Preedika muischa, Let., Pulkarn in Livonia.
Preedule, Let., Waddaxen in Courland.
Preekulls muischa, Let., Freudenberg in Livonia.
Presmir, Mol., Tartlau.
Prešov, S., Eperies in Hungary.
Pudschev muischa, Let., Gallandfeld in Livonia.
Pyhäristi, Fin., Mohla.

Rääkkylä, Fin , Bräkyla.
Radolica, S., Radmannsdorf in Carniola.
Rakusy, P., Austria.
Ranska, Fin., France.
Räntämäki, Fin., Marie Socken.
Reebiņi muischa, Let., Arendsburg in Livonia.
Regensburg, G., Ratisbon.
Rehdini, Let., Polish Livonia.
Rehsekne, Let., Rositen in Livonia.
Reka, S., Fiume.
Ren, P., the Rhine.
Rentmeistera muischa, Let., Luthershof in Livonia.
Renzene muischa, Let., Lubbert in Livonia.
Rihga (Jauna), Let., Neu Riga, *i. e.* Friedrichstadt in Courland.
Rihtera muischa, Let., Grütershof in Livonia.
Rikkera muischa, Let., Siggunt in Livonia.
Rim, Slav., Rome.
Rimanna muischa, Let., Largholm in Livonia.
Rohses muischa, Let., Lubar in Livonia.
Ronstatti, Fin., Kronstadt.
Rubbenes basniza, Let., Papendorf in Livonia.
Rubbes, Let., Ringen in Courland.
Rudolwes muischa, Let., Klauenhof in Livonia.
Ruhstusches muischa, Let., Russel in Livonia.
Ruotsi, Fin., Sweden.
Ruotsinsalmi, Fin., Svenksund.
Ruzkes muischa, Let., Würzenberg in Livonia.
Ryssel, G., Lisle.
Rzym, P., Rome.

Sabinov, S., Zeben in Hungary.
Sahmu semme, Let., Oesel Island.

Sakkaleija, Let., Sackenhausen in Courland.
Sakiz, Turk., Scio.
Sa[illegible]e muischa, Lit., Augustenthal in Livonia.
Saksa, Fin., Germany.
Saldupils, Let., Frauenburg in Courland.
Sall muischa, Let., Sallensee in Courland.
Sa[illegible]a muischa, Let., Grünhof in Courland.
Sallas muischa, Let., (1) Holmhof in Courland, (2) Holmhof in Livonia.
Sallaspils, Lit., Kirchholm in Livonia.
Samen, Sambien, name formerly given to Old Prussians by the Scandinavians.
Sammland, ancient Prussia.
Sanpietru, Mol., St. Petersburg, a small town.
Sarkana muischa, Let., (1) Rothhof in Courland, (2) Heidefeld in Livonia.
Sasy, P., Saxony.
Sa[illegible]u muischa, Let., Weessen in Courland.
Saules muischa, Let., (1) Altrahden in Courland, (2) Neurahden in Courland.
Sawolinna, Fin., Nyslott.
Schihds, Let., Jews.
Schkirsti[illegible]es muischa, Lit., Napkul in Livonia.
Schweizeem muischa, Lit., Neu Salis in Livonia.
Segisórà, Mol. Schössburg.
Seica mare, Mol., Markschelken.
Semigradets, Russ., Transylvania.
Shah Jehanabad, Pers., Delhi.
Sibii, Mol., Sibinj, S., } Hermannstadt.
Siebenbürgen, G., Transylvania.
Siedmiogród, P., Transylvania.
Siekierka świeta, P., Heiligenbeil in E. Prussia.
Sinhala-dwipa, Sans., Ceylon.
Silku muischa, Let., Bersemünde in Livonia.
Silla muischa, Let., Hohenheide in Livonia.
Sinuddu semme, Let., Schamayten.
Skadar, S., Scutari in Albania.
Skarzewo, P., Schöneck.
Skriwera muischa, Let., Römershof in Livonia.
Skulberga muischa, Let., Kolberg in Livonia.
Skultes muischa, Let., Adiamünde in Livonia.
Slavkov, S., Slawkov, P., Austerlitz in Moravia.
Slimvigu, Mol., Stoltzenburg.
Slovenski Gradec, S., Windischgratz.
Słupsko, P., Stolpen.
Soleure, Fr., Solothurn.
Spis, S., Zips in Hungary.
Splět, Split, S., Spalatro in Dalmatia.
Spreestees muischa, Let., Spurnal in Livonia.
Sprowa, P., the Spree.
Stahkelberg muischa, Let., Eichenaugen in Livonia.
Stambul, T., Constantinople.
Steene muischa, Let., Ulpisch in Livonia.
Steinthal, G., Ban de la Roche.
Steyermark, G., Styria.
Ston, S., Stagno in Dalmatia.
Straupe, Let., Roop in Livonia.
Suiki, Let., a people speaking a mixture of Lettish, Lithuanian, and Russian.
Suntascha, Let., Sonsel in Livonia.
Sunti, Fin., Stralsund.
Suomi, Fin., Finland.
Suurisaari, Suursalo, } Fin., Hogland.
Swennes muischa, Let., Zioren in Livonia.
Syczow, P., Wartenberg in Silesia.
Szabadka, Mag., Theresianopel.
Szamosujvar, Mag., Armenienstadt.
Szląsk, P., Silesia.
Szopron, P., Oedenburg in Hungary.

Tahmi, Let., Border people.
Tallinna, Fin., Reval.
Taprobane, Ceylon.
Tartto, Fin., Dorpat.
Tata, Mag., Dotis.
Tatry (góry), P., the Carpathians.
Taurunium, Lat., Belgrade.
Teepels muischa, Let., Witkop in Livonia.
Tehrpata, Let., Dorpat.
Tenä, Fin., Schlüsselburg.
Ternavà, Mol., River Kokel.
Tèrst, S., Triest.
Tèržic, S., Monfalione in Illyria.
Teuwa, Fin., Östermark.
Theodosia, Lat., Caffa in the Crimea.
Tihnuhse muischa, Let., Lindenburg in Livonia.
Tihsenuhse muischa, Let., Pernigelhof in Livonia.
Tisa, Mol., Tisza, Mag., the Theiss.
Torst, P., Trieste.
Torun, P., Thorn.
Tövis, Mag., (1) Dornstadt, (2) Dreykirchen.
Tövisfalva, Mag., Ternowetz.

Trallwn, W., Welshpool in Montgomeryshire.
Trefaldwyn, W., Montgomery.
Trefdraeth, W., Newport in Pembrokeshire.
Trefyclawdd, W., Knighton in Radnorshire.
Trenewydd, W., Newtown in Montgomeryshire.
Trewir, P., Treves.
Trier, G., Treves.
Triveni, Sans., Allahabad.
Trogir, S., Trau in Dalmatia.
Tsaregrad, Russ., Constantinople.
Tuges muischa, Let., Walmeshof in Livonia.
Tuhges muischa, Let., Kragenhof in Livonia.
Tuiwassalo, Fin., Töfsala.
Tukhulma, Fin., Stockholm.
Turku, Fin., Åbo.
Tuttenes muischa, Let., Lissenhof in Livonia.
Tyddewi, W., St. David's.
Tygur, P., Zuric.

Újbánya, Mag., Königsberg.
Újegyház, M., Leschkirch.
Újfalu, M., Neudorf.
Újhely, Mag., Neuberg.
Újszalonk, Mag., Neustift.
Újvaroska, Mag., Leopold Neustadel.
Újvidek, Mag., Neusatz.
Ulbrek ta muischa, Let., Stubbensee in Livonia.
Ulocza, Mag., Köppern.
Ummurga muischa, Let., Ubbenorm in Livonia.
Unger pils, Let., Pyrkel in Livonia.
Ungeres muischa, Let., Orellen in Livonia.
Unguru muischa, Let., (1) Ibden in Livonia, (2) Lomenen in Livonia.
Uničov, S., Mährisch Neustadt.
Uppe (leela), Let., the Aa, runs by Mitau from Bansk, where the Muuss and Memel unite.
Urgges muischa, Let., Argishof in Livonia.
Utrenie, Mol., the Mette.
Uusikaupunki, Fin., Nystad.
Uusikirkko, Fin., Nykyrka.
Uusimaa, Fin., Nyland.
Uuslinna, Fin., Novgorod.

Vac, Vacov, S., Waitzen in Hungary.
Velika Banya, S., Frauenbach in Hungary.
Vengriya, Russ., Hungary.
Vidam, S., Udine
Volcanu, Mol., Wolkendorf.
Vratislavia, Lat., Breslau.

Wähä kyrö, Fin., Lillkyrö.
Wahles muischa, Let., Sackenhof in Livonia.
Wahz semme, Let., Germany.
Wahzkalns, Let., Teutschenbergen in Livonia.
Wallis, G., the Valais.
Wälschland, G., Italy.
Wälschneuburg, G., Neufchatel.
Waltenberga muischa, Let., Salisburg in Livonia.
Warmia, P., Ermeland.
Węgry, P., Hungary.
Weibome, Let., Winterfeld in Livonia.
Weichsel, G., the Vistula.
Welka muischa, Let., (1) Welckenhof in Livonia, (2) Hohenbergen in Livonia.
Wenäjä, Fin., Russia.
Wezza muischa, Let., (1) Metakshof in Livonia, (2) Rooperbeck in Livonia.
Wezz Jerzem, Let., New Wohlfahrt in Livonia.
Wiapori, Fin., Sveaborg.
Wibroka muischa, Let., Sudden in Livonia.
Wid semme, Let., Livonia, *i. e.* Middle Land, between Esthonia and Courland.
Wiedeń, P., Vienna.
Wien, G., Vienna.
Wihk e muischa, Let., Zarnau in Livonia.
Wilka muischa, Let., Altbilkenshof in Livonia.
Wilk en muischa, Let., Turkaln in Livonia.
Wi tt aka, Let., Marienhausen in Livonia.
Wiplante, Let., Polish Livonia.
Wiro, Fin., Esthonia.
Wi-s-kale muischa, Let., Ramdau in Livonia.
Wissel muischa, Let., Friedrichshof in Livonia.
Withan, name of Prussians in Wulfstan (Voigt).
Wlochy, P., Italy.
Wltawa, P., the Moldau in Bohemia.
Woloszá, P., Walachia.
Worms, G., Bormia.
Wroclaw, P., Breslau.
Wschowa, P., Fraustadt.
Wyddgryg, W., Mold in Flintshire.
Wyszogrod, P., Hochburg

Zabern, G., Saverne.
Zadar, S., Zara in Dalmatia.

Zagreb, S., Zagrzeb, P., Agram.
Zavèršje, S., Piemonte in Istria.
Zatac, S., Saaz in Bohemia.
Zehrtene, Let., Ninigal in Livonia.
Zehse, Let., town of Wenden in Livonia.
Železno-Město, S., Eisenstadt or Kis Marton in Hungary.
Z'emaiczei, Lit., Samogitia.
Zemun, S., Semlin.
Zgorzelica, P., Görlitz.
Zizzara semme, Let., Roman empire.
Žlutica, S., Ludisch in Bohemia.
Zmudź, P., Samogitia.
Zockov, S., Klingenberg in Bohemia.
Zumberak, S., Sichelburg in Croatia.
Žuzemberk, S., Saisenberg in Carniola.
Zweibrücken, G., Deuxponts.

XXIII.—Hints to Travellers;

CONTAINING

1. *Report of Sub-Committee of the Royal Geographical Society, consisting of Capt. R. FitzRoy, R.N., and Henry Raper, Esq., R.N.; also* 2. *Papers by Rear-Admiral W. H. Smyth;* 3. *Rear-Admiral F. W. Beechey;* 4. *Lieut.-Col. W. H. Sykes;* 5. *Francis Galton, Esq., &c.*

Preface.

[Applications are frequently made to the Council of the Royal Geographical Society by travellers about to set out for imperfectly known countries for instructions by which they may make their labours useful to geography. When a traveller addresses a specific question relating to a local matter, or some particular point of equipment as regards instruments of observation, it will generally be easy to refer him to some member of the Society whose experience may enable him to afford a satisfactory answer; but when he puts his question in a general form, it is extremely difficult for the Council to return a suitable reply.

It seems a natural solution of the difficulty that the Council should themselves draw up a body of instructions to meet such occasions. But some insuperable objections very speedily suggest themselves. A complete system of instructions adapted to general application would embrace every point which could present itself to the notice of the accomplished traveller, and such a work would be an encyclopædia. On the other hand, a few general remarks of an elementary nature would be superfluous to an individual of moderate attainments, while it could not possibly impart the necessary qualifications to one who had no other knowledge or experience of the subject. Again, the nature of the observations which a traveller may make must depend on the character and quality of the instruments he carries—that is, on the quantity of baggage which it may be convenient or safe to carry

with him, and therefore on his personal resources. It is evidently as impossible to treat all such particulars to any useful purpose, as it would be to prescribe the equipment suited to the various unexplored regions of the world. But this is not all; differences prevail amongst experienced travellers themselves, not merely as to details of observations, the degree of accuracy which it is advisable to aim at, and other matters, but as to whether particular instruments should be carried or not.

On these grounds the Committee do not think it advisable to undertake the formal publication of instructions for travellers; nevertheless, as many valuable suggestions have been made by scientific men on the occasion of these applications, which they are desirous should be made accessible to travellers in quest of information on particular points, they have recommended the publication of certain papers which follow, with the names of the authors.]

Hints to Travellers.

With respect to such applications for instructions, it may be advisable to reply in the first instance with reference to special enterprises, and afterwards to compile more extended and detailed information for the use of travellers generally—if, indeed, so wide and comprehensive a range should be deemed within the province of the Royal Geographical Society.

Some inquiries refer more particularly to the case of "a traveller who proposes to visit really wild countries," and "to lay down a useful map of his journey."

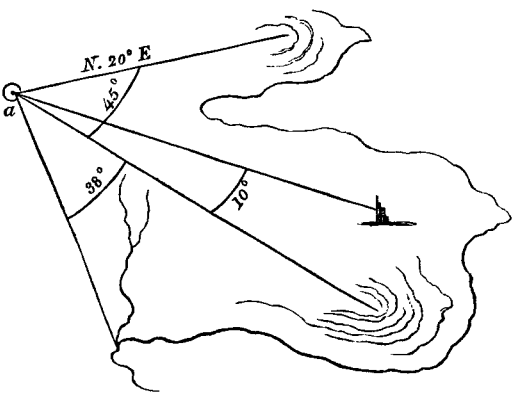
It is understood that he has already travelled, and has given proofs of his acquaintance with the use of several necessary instruments. Were not this the case, we fear that the fullest instructions would hardly suffice to give any traveller possession of such practical skill as should be acquired experimentally.

We think that the following list of instruments will be found sufficient for the traveller's purposes, and not too cumbersome or difficult to carry:—

A sextant, horizon, pocket-sextant, Kater's compass, Rochon's micrometer, and a sympiesometer, two pocket-chronometers, two thermometers, two portable barometers, two aneroids, and two boiling thermometers. It would be very desirable to carry a second sextant or circle, an additional horizon, and another prismatic compass, in case of accidents. Writing and drawing materials, stationery, scales, tapes, and register-books, should be carried in convenient cases—water-tight, if possible. With these, or even a part of these materials, a complete map may be laid down.

We consider the sextant (or circle) and horizon to be an efficient and reliable observatory for travellers, when accompanied by two or three chronometers. With such simple means there is far less risk of error than in using instruments of higher pretensions and more complicated structure.*

To lay down a useful map is an easier task than usually supposed, if correct principles be adopted and carefully followed in practice. A field-book (angle or bearing-book) should be always at hand, in which every particular relating to the direction travelled (or course), the distances, times, angles, bearings, and observations, should be noted on the spot and as they occur, as far as may be practicable: the less left to memory the better. Descriptions should be written with the objects *in view*. Times of occurrences, changes of course, and other data, should be noted as often as possible; but that which is subsequently found invaluable when laying down the work permanently, is a collection of sketches of the country passed over, in *plan*, with a partial mixture of profile views, on which the angles observed or lines of bearing are traced by hand, with their corresponding figures written along them or across the angles, thus:—



By noting the angles and bearings on the *plan*, as well as in regular columns, in the field (or bearing, or angle) book, and inserting as many profile views, half-plan half-profile sketches, and horizontal plans, in the book as time will allow, an immense

* Raper's Navigation is a storehouse of information, not only on the practical use of instruments, but on the various methods of computing or reducing the observations by easy compendious calculations (suitable for the traveller on a journey, or the seaman in a gale); as well as by the longer and exactly accurate computations. Neither seaman nor traveller ought to leave England without the *latest* edition of this valuable work.—R. F.

amount of perplexity will be prevented, and increase of accuracy will be ensured.

Such plans as these are so many sketch maps made on the spot, from which accurate compilations may afterwards be made with comparative ease. In laying down or connecting points trigonometrically between the stations that are determined astronomically, true bearings and angles by reflecting instruments should be preferred to any use of the compass, which, however valuable as an auxiliary to fill in minor details, is not to be relied on in all places, and is apt to get out of order in consequence of its centre wearing by friction, as well as from other causes not always self-evident.

By fixing principal points astronomically, using trigonometrical connection between them, and filling in minor details by angles, bearings, and eye-sketches, it is surprising how much work may be done in a short time by a practised traveller.

For latitudes, besides the ordinary meridian or circum-meridional observations, single, double, or equal altitudes will be useful, the TIME being always obtained as accurately as may be.

Cross-altitudes* of stars are excellent, and easily obtained in tropical climates, where the sun is usually too high at noon for convenient observation in the artificial horizon.

Observations of the moon are not to be relied on to such accuracy as those of stars or the sun, on account of her parallax and irregularities. This applies still more to determinations of longitude by the right ascension or declination of the moon, in which a very small error of observation, or tabular position, will affect the result excessively.

For longitudes we think there is no method available for travellers in a wild country so sure and easy as cross-lunars.† A few good sets of cross-lunars taken in one night by the same observer, with the same instrument, will give the longitude within three miles of the truth. This is stated *confidently* as the result of experience. The altitudes must be calculated, for which the *time* must, of course, be known *nearly*. Differences of time by chronometers suffice for intermediate distances, and are, within such limits, most satisfactory. But in a country where there are good marks well defined, accurate meridian distances may be obtained by good differences of latitude and true bearings between points connected trigonometrically.

When equal altitudes are not obtained for time (with a view to ascertaining the error and rate of chronometers, or difference of longitude), absolute (single or independent) altitudes may

* By cross-altitudes we mean observations of stars on opposite sides of the zenith, and nearly equidistant from it.

† Observations of the moon's distance from stars, nearly equidistant, east and west.—R. F.

be observed; and it should be remembered that those taken before noon should be compared with other forenoon sights, and those taken afternoon with other afternoon sights, in deducing the difference of time between places from their results.

For base lines, the more rapid methods of attainment are alone suitable to the present object. No measure is more accurate and speedy than that obtained by meridian altitudes of the same heavenly body (sun or star, *not* the moon) at different stations, by the same observer, with the same instruments. If the stations are in the true meridian, or nearly so, their difference of latitude is their distance, near enough for our traveller's purpose; and if they are otherwise situated, their true bearing, obtained by an azimuthal observation of the sun or a star, and their difference of latitude, give the true meridian distance or difference of longitude between them, as well as their direct distance, the required base line.

If for particular purposes, such as a local plan, a short base line be required, an accurately measured board or pole, and a Rochon micrometer, or a sextant, will suffice. A short base may be measured first, two poles erected, and then a longer space ascertained by angular measurement. Field-work should be laid down on a moderately large scale, from a quarter of an inch to an inch, and for particular plans even several inches to a mile.

Magnetic observations, geological researches, mineralogy, zoology, botany, and ethnology, require the assistance of competent authorities on those subjects.

Your Sub-Committee will now add a few brief remarks on the instruments they have recommended.

Beautiful as instruments of a higher class than sextants and reflecting circles seem to be in theory, and are, when fixed securely and properly, in practice;—the great difficulty of finding a secure foundation for them to stand on, of adjusting them accurately (under the ordinary circumstances of a traveller), and of maintaining their exact adjustment while the observer is moving round them on, perhaps, unsound ground, are reasons which have induced us to think it unadvisable to recommend them to hurried travellers, who are not such adepts in their use as practised astronomers, and who might easily overlook an error of adjustment that would vitiate a whole set of observations.

Unless the results that are carefully recorded be those of observations made on correct principles, with instruments sufficiently accurate, practically as well as theoretically, all the time and pains they have cost are thrown away; and these consequences have been witnessed too frequently where transit, or azimuth and altitude, or other instruments *on stands* were employed.

It should be borne in mind that travellers cannot attempt to

attain perfect accuracy in their observations made during a first exploration. It is not the fraction of a second of time, nor even the fraction of a mile of latitude that is required, but the degree and nearest minute.

All instruments should be in leather or canvas cases, painted *white*, slung by straps, and "becketed" * sufficiently.

Barometers and other glass instruments are better carried on men's backs (with the *upper* ends down) than in any other manner, but their bearers must of course be very careful.

If possible, chronometers should be worn *night and day*, to ensure uniform temperature and care. Motion affects chronometers far less than change of temperature.

The reflecting circle is an instrument highly esteemed (especially by the French), but it cannot measure an arc larger than 140° satisfactorily, on account of the extreme inclination of the index to the horizon glass. It is heavier and more cumbersome than a sextant of equal radius, and is more difficult to handle.†

A sextant with a doubly graduated arc and an additional horizon glass, will measure 160° satisfactorily.

When the sun is more than 80° high, his altitude cannot be taken in an artificial horizon, because the head of the observer obstructs the sun's rays while endeavouring to observe the altitude.

The roof of the artificial horizon should be portable, fitted to fold together, and, whenever used, should be reversed from time to time, so that half the altitudes should be taken with one end of the roof towards the observer, and the rest with the other. The trough should be smaller than usual, and raised in the roof by a thick bottom, so that an angle may be taken near the horizon. The mercury should be level with the edges of the trough, so that any dross may be scraped off by a piece of paper, or a *thin strip of wood*, kept in the box. Having the quicksilver level with the edges of the trough facilitates observing a low altitude. The mercury may be kept in a wooden, or in an iron bottle, with a screw-stopper and cap-funnel. To prevent spilling, the trough should have a notch at one corner *inside*, and be cut away *underneath*. The bottle should hold more mercury than will fill the trough, and a spare bottle should be carried. If all the mercury should be lost, coloured water will do nearly as well (dark or inky water). The horizon trough and roof should be placed on a flat plate of metal standing on three knobs. This will at once give a place for the horizon where the ground is uneven, wet,

* Having loops or eyes of leather or cord at the sides or corners for slinging or fastening them, when travelling.

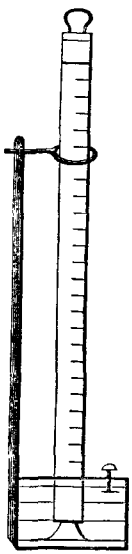
† The *repeating* reflecting circle is much praised by Col. Sabine. *See* also article upon it in the Penny Cyclopædia, under "*Sextant*."—Ed.

grassy, or soft. A leaden plate, about the size of a thin octavo book, with three knobs an inch long underneath, is suitable, because its weight steadies it among grass or in soft places.

The observer should endeavour to sit down on the ground, as near the artificial horizon as he can, in order to steady his arms and body, and avoid being disturbed by any wind. Cross-legged, with the elbows steadied on the knees, is a position as firm as can be maintained.

Rochon's micrometer is frequently useful as a telescope, carried in a case on the back.

Barometers might be made, for the special use of exploring travellers, in a simple manner. The tube should be unconnected permanently with the cistern, open at both ends, but capable of being hermetically closed temporarily at one end; it should be large, strong, and graduated on the glass. The cistern should be capable of admitting the tube when required, which should then be supported by a rod of iron screwed to the cistern, and steadying the tube by an arm with a clamp ring. There should be a float in the cistern, and, when not in use, the apertures for the float and tube should be closed by screws. The cistern should be of iron. The mercury should be clean, and as pure as possible, but not boiled.



Such a barometer might not give results *strictly* accurate, as independent measurements of pressure, but if filled carefully so as to exclude visible air-bubbles, duly compared with good standard instruments, and the temperature of the mercury, as well as that of the atmosphere, properly noted at each observation, it is believed that it would give valuable comparative results.

Several tubes might be carried in one strong case, *with the baggage*, and a spare one in a light metal case, to the place of observation.

HENRY RAPER,
ROBERT FITZROY, } *Sub-Committee.*

Extracts from a Letter by Rear-Admiral Smyth, addressed to the Secretary.

THE first duty of a geographical traveller is the accurate determination of the route, stations, and topography of his journey; and the fewer instruments he is encumbered with the better will they be worked. Skilful mapping of regions little known is an

actual boon to science, especially when accompanied by the observations of an intelligent mind. The general elevation of the countries passed over is ever a co-ordinate of importance, since much physical information may be derived therefrom as to the nature of production, modified by geographical position and consequent climate. Such are the appropriate ends of scientific travellers: but it should ever be borne in mind that quality, and not quantity, is the true end.

For he who explores Africa I may, from experience, advise that no accurate part of his instruments—as for instance the barometer-case—be made of wood; and everything should be exposed to a high heat before leaving London, perhaps equal to 120° in the shade, and 160 in the sun. No levels nor thermometers that will not stand this ordeal should be taken. The instruments should be few and simple, light and well-packed in non-conducting cases; and a portmanteau full of clothing is the very best packing-case for levels and thermometers, since the extremes of temperature will not be experienced therein. Thus, in a tent with the temperature of the day at 95°, a thermometer in a portmanteau was at 60° only.

An African traveller needs a pocket prismatic azimuth compass, with which he must take rounds of angles—including the sun—at all his stopping places, and on the road also if opportunity offers; but his best instruments should only be unpacked at crucial stations. He should have the most improved measuring tapes, and every opportunity must be taken of multiplying measurements of length for base-lines for filling in between standard positions by what may be deemed *dead-reckoning*. Still the most important object is an efficient angular instrument for fixing the latitude and longitude, without which the other work is comparatively useless. I alluded to this subject in my last Address to the Society, and have little to add unless a person were under drill. Latitudes, of course, will be measured by altitudes of the sun or stars in the meridian; but, for the determinations of longitude, more practice and attention will be required. Small differences may be measured by a chronometer, yet cannot be trusted, as the going-rate in African travelling is mostly useless: the capital measures made by Admiral Beechey, with two pocket chronometers, when a Lieutenant of the Adventure under my command, round the shores of the greater Syrtis, form a solitary exception. Absolute determinations by the moon, as I have said, must be looked to, not lunar distances—so often mischievous under unpractised hands—but altitudes of the moon and star, getting the right ascension when out of the meridian, or the declination when in the meridian. As to the favourite plan of observing the eclipses of the satellites of Jupiter, besides the uncertainty of instant, the method involves

the necessity of carrying a telescope of power, and obtaining corresponding observations.

This is what is to be done; now how should we do it? A sextant is the most portable of instruments; but you must add thereto an artificial horizon, a heavy, lumbering thing, if good, and if of the best kind, namely, quicksilver, the fluid will assuredly be spilt and lost in the sand, besides some getting out and damaging the instrument. Then again, unpractised persons require a stand for the horizon, or the instrument, or for both; and at best you can only thus measure altitudes above and below a certain height, and so lose a great part of the sky, and that very part in which the sun is placed in Central Africa. A portable altitude-and-azimuth instrument, with its stand, would therefore be necessary to good work.

Now such a complication is adverse to the ends of the mere explorer, and therefore it is with equal pleasure and conviction that I recommend the Universal Instrument proposed by my son the Astronomer Royal of Scotland, who has had great experience of these matters in South Africa, during the late mensuration of an arc of the meridian in that country. It is a sextant when used for hand-work; or, if fastened on its stand, will measure any altitude and azimuth angles, give meridian transits on five wires, and the like, more conveniently and quickly than by the usual theodolites and other graduated instruments in use. It is, moreover, simple in construction, inexpensive, and easy to use; and a three-legged stand, for general purposes, is always readily carried, as it requires no care.

It remains to notice the determination of heights, independent of the troubles of levelling or trigonometry. The most accurate of the secondary methods in practice is, of course, by means of the barometer; but the difficulty of transporting this instrument (in my own opinion rather exaggerated) has been so greatly complained of by travellers, that mechanicians have turned their attention to the subject; and miniature barometers, sympiesometers, aneroids, and other substitutes have been the consequence. Yet such are the discrepancies of zero and scale, that, except the improved Adie's sympiesometer, the boiling thermometer is better than either of them, as keeping its zero constantly. But that method, though affording comparative ranges for a traveller in a new and wild region, is liable to very serious errors, particularly from the boiling taking place under unequal pressure when the steam is confined; nor is it easy to boil properly. The apparatus which I used was made expressly for me by M. Drescler at Palermo, in the year 1813, and consisted of a cylindrical pot, with a lamp appendage for boiling the water; and the thermometers were so mounted that half the scale could be turned up the back by a

hinge, leaving only the bulb and part of the stem immersed in the hot water. This is the instrument mentioned in my account of Mount Etna (*Sicily and its Islands*, p. 145); and it is also described in Baron de Zach's *Correspondance Astronomique et Géographique*. Various experiments were made with it during my operations in the Mediterranean, merely, however, in comparison with the trigonometrical or barometric points.

But even in this boiling-point process, though on the whole so eligible, there is weight to carry, and trouble to take; and as, in addition to the importance of very frequent observations to get at the section of a country, readings of the barometer and thermometer will be absolutely necessary as an appendage to the astronomical work — it is my own opinion, that a small Adie's sympiesometer is the best instrument for an exploring traveller; and I may further say, that though a chronometer may undeniably be useful, still it is not importantly so, because absolute longitudes by the moon should always be aimed at: a mere seconds' watch will therefore do for intermediate work.

Extracts from a Letter by Rear-Admiral Beechey, addressed to the Secretary.

I BELIEVE that arcs by chronometer may be accurately measured, but with great care, and you may remember that some were done with excellent results, on my plan, by Dr. Colthurst, who went to the Colorado through Sonora. But a track by a pocket compass, well timed and filled into a form of this description, would tell a very good tale if checked by meridian altitudes and observations at the beginning and the end of the day:—

Date.	Place.	Time.	Bearing forward Track.	Bearing back Track.	Bearing of remarkable Objects.	Estimated Distance.

I do not think a transit instrument calculated for an exploring expedition. If the traveller has a caravan, and is going to remain a fortnight or more at a place, and then proceeds on again with the same means of transporting his baggage and instruments, a transit might be taken, as it could be fixed on a stand sufficiently stable for the purpose. But I should have no faith in moon culminations

with a transit on a tripod: I would by far rather trust to lunars with a six-inch sextant. You may perhaps recollect that I have had a good deal of experience both with portable transits, and with lunars: a transit involves some kind of an observatory, and a meridian line; to have any results which are satisfactory with a transit, there must be convenience for observation, without letting in the wind or sand, and there must be stability in the instrument. Poor Ritchie took a transit, but I found it at Tripoli after his death, with many valuable scientific instruments, which he procured in this country and at Paris, and probably never used.

I should strongly recommend the sextant being fitted with a telescope with a horizontal wire in the focus of the field-glass, adjusted to a level on the top, after the manner of levelling instruments; for when so fitted and screwed to a stand, altitudes of hills and low altitudes of stars or other objects may be very accurately observed, and, with a cross level, altitudes of any elevation may be approximately determined; or a small collimator, such as I supplied Sir E. Belcher with, might be hooked on opposite the horizon-glass, which would answer the same purpose; or if loose, and placed on a wall or large stone, it would answer all the purpose of an artificial horizon.

Principal Instruments for the Track.

A six-inch sextant on a plan which will measure accurately *any angle.*

A double pocket sextant.

A good achromatic telescope fit for observing satellites of Jupiter and an occultation.

A prismatic azimuth compass and spare card and pin.

An artificial horizon.

Two pocket chronometers.

For meteorological purposes—Thermometers (small), barometer aneroid.

Pocket compass, for the track, to be hung round the neck and consulted at every turn of the road.

I do not think a Rochon of much use on such a journey; a sextant will measure with considerable accuracy small bases. I tried both in my survey of the Severn, and had the means of detecting every measurement; and I do not think Rochon so superior as to recommend it to a traveller about to explore a country. The longitudes of the principal places may always be determined with sufficient accuracy by lunars, E. and W., with a sextant. Jupiter's satellites, occultations and eclipses, should always be observed when practicable, as being valuable adjuncts.

The track between these places may be kept by D. R., by observing the course and the time of starting and of arrival at each place and at each turn in the road, and especially of final arrival at resting-place at night. The rate of travelling with camels or

horses may be ascertained with considerable accuracy,* and any error in the track may be corrected by observations made before starting and after arrival at night.

The traveller should rigidly adhere to the rule of getting morning sights for chronometer before he starts from any place, and evening sights when he alights for the night; as the chronometer will thus be checked in its rate, which is not the same when travelling during the day as when resting during the night. He will therefore have to observe at every place, both evening and morning, for his chronometer, and as many more altitudes of stars as he thinks necessary for his latitude. This is tedious after a hot, fagging day's journey, but I always did it, and found the greatest satisfaction from it. He should, as before said, take his course and time throughout the day, and at noon alight and get the meridian altitude—connecting it with this track and with bearings of distant objects.

He should have a square book, ruled in inch or half-inch squares, to mark down the track and to delineate the topography as he proceeds One set of lines should always be considered the magnetic meridian, and the track should be laid down upon it as the traveller proceeds, and as nearly in the right direction with respect to the meridian as possible for the eye to draw it. The squares should be considered as miles of distance, each square representing one mile, and all places be put down according to their estimated distances in their proper positions. A little practice will familiarize the traveller with this species of plotting, and the more careful he is in marking down objects the greater will be his satisfaction at the end of the day.

At night before he goes to rest he should look over his D. R. to run it out fair, and enter it at once in its proper column in his day's-work book. Bearings of remarkable points should be carried on from time to time as long as the objects can be seen, as they afford an excellent check to the track and a correcting point for the surrounding topography. These bearings should be particularly observed at the great turnings of the track-path, and astronomical bearing should be constantly resorted to. The azimuth may be computed from the time by chronometer, which will save the double observation.

* I found the average rate of laden camels to be $2\frac{3}{4}$ miles per hour; they will walk considerably faster than this, but the difference is lost in the many little bends in the road which cannot be taken into account in plotting the track. The nature of the road will also vary their speed; a little experience will enable the traveller to estimate this correctly.—*See* my African journey from Tripoli to Egypt through Cyrene.

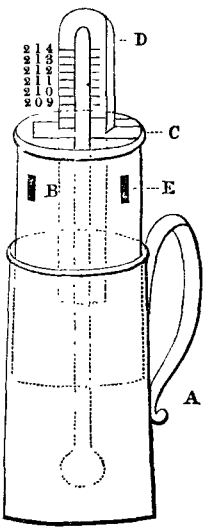
On the Use of common Thermometers to determine Heights.

[Extracted from the Paper by Lieut.-Col. W. H. Sykes, in Vol. VIII. of the Journal of the Royal Geographical Society.]

HAVING been recently applied to by two gentlemen about to travel—the one in Africa, and the other in Asia Minor—for a description of the thermometers and apparatus used by myself for some years in India for determining heights by the boiling temperature of water, I have ventured to believe that a brief account of a process which I found to produce results sufficiently near to the truth for most practical purposes may not be unacceptable to some members of the Society, particularly as I carried on my barometrical observations contemporaneously, and thereby obtained data for fixing the value of certain points on the thermometric scale. To determine heights accurately, good barometers are necessary, which have been carefully compared with a standard barometer; the observations must be taken simultaneously at the upper and lower stations, and the temperature of the mercury and the air, and the hygrometric state of the latter, must be noted. Heights so determined, when tested again in the same or succeeding years, I have rarely found to vary more than 10 or 20 feet in 4000 or 5000. When barometers are used which have not been previously compared with a standard, when the observations are not simultaneous, and when the pressure and temperature at the level of the sea are *assumed*, the results may by accident be near to the truth, but they will usually be from 100 to 300 feet wrong—at least such is the result of my experience within the tropics. But good barometers are very costly; they are troublesome to carry, are particularly exposed to accident on a journey, and get out of order by the escape of the mercury, which being frequently unobserved, the barometer continues to be used as if it were correct. The late Archdeacon Wollaston, aware of these facts, invented the thermometric barometer to supply the place of the ordinary barometer. This instrument is very sensible, but it is very fragile from the great weight of the bulb compared with the slenderness of the stem: moreover, there are some complex accompaniments, and the instrument is also expensive. In short, I found it not fit for *rough work* out-of-doors, having had three destroyed at the outset of my labours; and the same opinion is expressed by Mr. James Prinsep, of Calcutta, who is well known for the practical application of his scientific knowledge. I had then recourse to common thermometers, and, with certain precautions in their use, found them answer my purpose sufficiently well. A tin shaving-pot was my boiler; dry sticks and pure water were usually to be

had. and by the time my barometers were settled I was ready to take the boiling temperature. The following is a sketch of the apparatus.

It will be seen that the chief part of the scale usually attached to the thermometer is removed, only so much of it being left as may be desirable: I, however, permitted the brass scale of one of my thermometers to remain, and I did not discover that it was the cause of error. Previously to taking the thermometers inland, it is necessary to ascertain their boiling points at the level of the sea; for in many instances the scales are so carelessly applied that a thermometer may indicate a boiling temperature of 213°, 214°, or 215°, at the level of the sea: one of mine stood at 214·2 when water boiled. Nevertheless, by making a deduction of 2° 2′ in all observations, the indications rarely differed five-hundredths of a degree from the other thermometer, of which the boiling point was 212°: the temperature of the air and the height of the barometer at the time the *verification* of the thermometers is made must be noted. The following is the manner in which my observations were taken:—from 4 to 5 inches of *pure* water were put into the tin pot: the thermometer was fitted into the aperture in the lid of the sliding-tube by means of a collar of cork; the tin tube was then pushed up or down to admit of the bulb of the thermometer being about *two inches* above the bottom of the pot. Violent ebullition was continued for ten minutes or a quarter of an hour, and the height of the mercury was repeatedly ascertained during that time, and the temperature of the air was noticed. Similar operations were repeated with a *second* thermometer; for it is never safe to rely upon *one* instrument. Having obtained the boiling points, it remains to determine the value of the indication of diminished pressure when the observations are taken above the level of the sea. The elastic tension of steam at different points on the thermometric scale has been determined by experiment, but not at regular intervals on the scale, nor with similar results, by different persons; tables,



A, A common tin pot, 9 inches high by 4 in diameter.
B, A sliding tube of tin moving up and down in the pot; the head of the tube is closed, but has a slit in it, C, to admit of the thermometer passing through a collar of cork which shuts up the slit where the thermometer is placed.
D, Thermometer, with so much of the scale left only as may be desirable.
E, Holes for the escape of steam.

therefore, computed from the formulæ of the various experimenters, do not accord; but, in three tables (by Mr. Prinsep, Lieut. Robinson, and one by an anonymous author in the Madras Gazetteer for 1824) which I have in my possession, the heights computed by them, when compared with heights determined by corresponding barometrical observations with previously compared barometers (the only satisfactory way to ascertain heights not taken trigonometrically), approximate sufficiently near for all practical purposes where great accuracy is not desired. These tables, however, differ slightly from each other.

TABLE I.—To find the Barometric Pressure and Elevation corresponding to any observed Temperature of Boiling Water between 214° and 180°.

Boiling Point of Water.	Barometer Modified from Tredgold's Formula.	Logarithmic Differences or Fathoms.	Total Altitude in Feet from 30·00 in. or the Level of the Sea.	Value of each Degree in Feet of Altitude.	Proportional Part for One-tenth of a Degree.
°			Feet.	Feet.	Feet.
214	31·19		- 1013		..
213	30·59	00·84·3	507	- 504	..
212	30·00	84·5	0	- 507	..
211	29·42	84·9	+509	+509	..
210	28·85	85·2	1021	511	51
209	28·29	85·5	1534	513	..
208	27·73	85·8	2049	515	..
207	27·18	86·2	2566	517	..
206	26·64	86·6	3085	519	52
205	26·11	87·1	3607	522	..
204	25·59	87·5	4131	524	..
203	25·08	87·8	4657	526	..
202	24·58	88·1	5185	528	..
201	24·08	88·5	5716	531	53
200	23·59	88·9	6250	533	..
199	23·11	89·3	6786	536	..
198	22·64	89·7	7324	538	..
197	22·17	90·1	7864	541	54
196	21·71	90·5	8407	543	..
195	21·26	91·0	8953	546	..
194	20·82	91·4	9502	548	..
193	20·39	91·8	10053	551	55
192	19·96	92·2	10606	553	..
191	19·54	92·6	11161	556	..
190	19·13	93·0	11719	558	..
189	18·72	93·4	12280	560	56
188	18·32	93·8	12843	563	..
187	17·93	94·2	13408	565	..
186	17·54	94·8	13977	569	57
185	17·16	95·3	14548	572	..
184	16·79	95·9	15124	575	58
183	16·42	96·4	15702	578	..
182	16·06	96·9	16284	581	..
181	15·70	97·4	16868	584	..
180	15·35	97·9	17455	587	..
					59

TABLE II.—Table of Multipliers to correct the Approximate Height for the Temperature of the Air.

Temperature of the Air.	Multiplier.	Temperature of the Air.	Multiplier.	Temperature of the Air.	Multiplier.
°		°		°	
32	1·000	52	1·042	72	1·083
33	1·002	53	1·044	73	1·085
34	1·004	54	1·046	74	1·087
35	1·006	55	1·048	75	1·089
36	1·008	56	1·050	76	1·091
37	1·010	57	1·052	77	1·094
38	1·012	58	1·054	78	1 096
39	1·015	59	1·056	79	1·098
40	1·017	60	1·058	80	1·100
41	1·019	61	1·060	81	1·102
42	1·021	62	1·062	82	1·104
43	1·023	63	1·064	83	1·106
44	1·025	64	1·066	84	1·108
45	1·027	65	1·069	85	1·110
46	1·029	66	1·071	86	1·112
47	1·031	67	1·073	87	1·114
48	1·033	68	1·075	88	1·116
49	1·035	69	1·077	89	1·118
50	1·037	70	1·079	90	1·121
51	1·039	71	1·081	91	1·123

Enter with the mean temperature of the stratum of air traversed, and multiply the approximate height by the number opposite, for the true Altitude.

My thermometers were not graduated to less than half-degrees, and long practice enabled me to determine the height of the mercury in the stem to one-twentieth of a degree; but I would recommend thermometers being used in which the degrees are graduated to fifths or tenths of a degree. On the whole, I think the results of six years' experience justify me in saying that common thermometers may be satisfactorily used to supply the place of barometers in measuring heights where great accuracy is not required; and it will be recollected that what is usually looked upon as a difficult and troublesome operation with barometers, will be attainable by any person who carries with him a couple of thermometers, the requisite tin pot, and the tables, and who is master of the simplest rules of arithmetic.

Of the three above-mentioned tables I have chosen Mr. Prinsep's to submit to the Society, from their perspicuity and the facilities they offer for the conversion of boiling temperatures into heights with very little trouble; but a glance over the figures in my tables of altitudes, published in the eighth volume of the Journal of the Royal Geographical Society, will show that the tables are susceptible of considerable improvement; for, with two exceptions, all the heights deduced from Mr. Prinsep's and Lieut.

Robinson's are much below those determined by simultaneous observations with good barometers; and I join with Mr. Prinsep in expressing a hope that every traveller boiling his thermometers will at the same time, if he possess a barometer, make a record of its indications, and thus render essential service to physics by fixing so many points on the scale of the elastic tension of steam at different temperatures.

When the thermometer has been boiled at the foot and at the summit of a mountain, nothing more is necessary than to deduct the number in the column of feet opposite the boiling point below from the same of the boiling point above: this gives an approximate height, to be multiplied by the number opposite the *mean* temperature of the air in Table II., for the correct altitude:—

	°	Feet.
Boiling point at summit of Hill Fort at Purúndhur, near Púna	204·2	= 4027
Boiling point at Hay Cottage, Púna	208·7	= 1690
Approximate height		2337
Temperature of the air above	75°	
Ditto ditto below	83	
Mean	79 = Multiplier.	1·098
Correct altitude		2·566 ft.

When the boiling point at the upper station alone is observed, and for the lower the level of the sea, or the register of a distinct barometer is taken, then the barometric reading had better be converted into feet, by the usual method of subtracting its logarithm from 1·47712 (log. of 30 inches) and multiplying by ·0006, as the differences in the column of "*barometer*" vary more rapidly than those in the "*feet*" column.

	Feet.	Feet.
Example.—Boiling point at upper station	185° =	14,548
Barometer at Calcutta (at 32°) 29 in. 75°		
Logar. diff. = 1·47712 — 1·43749 = 00363 × 0006 =		218
Approximate height		14,330
Temperature, upper station 76° / Ditto lower 84° } 80 = multiplier		1·100
Correct altitude		15,763

Assuming 30·00 inches as the average height of the barometer at the level of the sea (which is, however, too much), the altitude of the upper station is at once obtained by inspection of Table I., correcting for temperature of the stratum of air traversed by Table II.

[*Note.*—Dr. Hooker finds that the index error of boiling point thermo-

meters is often more than 1° even in instruments supplied by the best makers.—(1854).

According to Mr. Adie, optician, Edinburgh, the index error is liable to change from some hidden cause amounting to nearly a degree in a few months.

See Dr. Buist's paper on the Aneroid, page 43, vol. xxi. Royal Geographical Journal.]

Ed.

Letter addressed by Francis Galton, Esq., to the Secretary.

Sir,—When a man, for the first time in his life, proposes to explore a wild country, he is sure to ask, "What astronomical and mapping instruments ought I to take with me, and how should I pack and carry them?" It therefore seems to be a very proper undertaking for persons who have already had to do with these things, to record their experience in answer to the above question. And, further, I am sure it would be of infinite service to young travellers if different lists of instruments, books and stationery, were drawn up; each complete in itself, down to the minutest detail, so that a tyro having selected any one of them might straightway take it down to the different shops and order off-hand his complete outfit. He would then be satisfied that he had omitted to provide himself with no object of real importance, that he had bought nothing superfluous, and that the different items of his store corresponded together in size, in power, and in their several uses.

Half-a-dozen or more different lists might be drawn up; they would vary according to the accuracy of the results aimed at, to the character of the observations intended to be made, and also, to a great extent, according to the fancy of the person who might draw up the list.

But a young traveller would never go far wrong who followed to the letter any one of these lists. His danger lies in following the advice of observers who have little experience of the bush, or else in adopting scattered hints from many sources, and starting with instruments which, though individually good, are, when considered as a set, incongruous and incomplete.

A rough estimate of prices might be added to these lists, and hints on packing and carrying them would be of great importance. It is a desideratum as yet unsupplied, to arrange one or more light strong cases fit for strapping on an animal's back, or on men's shoulders, readily to be opened and unpacked, which shall contain all the books and instruments that a traveller requires for his daily use.

Guided by these views I will proceed to describe an outfit based upon that which I used, which would suit an explorer in any part of the world, who desired the means of bringing back as good

geographical determinations, generally speaking, as explorers over large tracts of land have ever yet succeeded in obtaining. And in the list that I am now about to draw up professedly for an inexperienced observer, simple and well known instruments shall only find a place. I am very far indeed from thinking that instrument makers have yet learned to meet the wants of land travellers, but as we *know* that good results may be obtained from such sextants, &c., as are to be bought at any optician's shop, I would urge a young explorer to make *these* his mainstay; and if he takes other instruments, to do so more for the purpose of testing and reporting on their performances, than of relying in entire confidence upon their suiting him.

Again, it is hazardous for a man hurriedly preparing himself for a journey, to order new apparatus from a maker; he can never be sure that it will be made nicely or punctually, and he may have to set sail in possession of a strangely shaped instrument—very delicate, difficult to pack—whose adjustments he has not had opportunity of mastering, and on which nobody out of England can give information; whilst if he determines on buying a sextant, he may make his selection out of great numbers that are always ready made to hand, and practise himself in its use, under the tuition of the officers of his ship, during the whole of his voyage from England. It will, therefore, be my present object to give a list of instruments which, though confessedly improvable in numerous points, will, all things considered, be what I should advise a traveller of but little experience to provide himself with, and which, beyond all doubt, are thoroughly adequate to do his work.

Outfit for an Explorer.

A Sextant—

A sextant of five-inch radius, light in weight, by a first-rate maker, divided clearly, and on platinum, to quarter degrees. It must have a ground-glass screen fixed in front of the reading-off lens to tone down a glaring light, and a coloured glass to screw on to the telescope for index error purposes, in addition to the coloured shades.

The handle must be adapted for fixing on the telescope stand.

A Sextant—

A sextant of three-inch radius, graduated boldly to half degrees, in a leather case, like that of an azimuth compass, suitable for slipping on to a leather belt and being worn round the waist, if required.—Reserve, a second five-inch sextant, or other angular instrument of whatever kind the traveller may wish to take.

Artificial Horizon—

The trough must not be less than 3¼ inches, inside length; it must be of the usual construction for filtering the mercury when it is poured in. The glass screen must be a folding one, and by a first-rate maker.—

Reserve, one spare glass and a strong two-ounce glass bottle full of mercury, wrapped up loosely in a roll of clothes and well tied up and labelled.

Watch—

A common, strong, silver watch, not too heavy, with an open face and a second hand; it must wind up at the back. The hands should be black steel, not gilt, and they and all the divisions should be very clear and distinct. The performance of the watch is really a very secondary matter. 4*l.* is quite enough to give for it.—Reserve, at least two other watches of the same character; these should be rolled up separately, each in a loosely-wrapped parcel of dry clothes, say of old stockings, and they will never come to harm: they should be labelled, and rarely opened. Half a dozen spare watch glasses, fitting easily; two to each watch. Three spare watch-keys; one might be tied to the sextant-case, one wrapped up with each watch.

Compass—

An azimuth compass, graduated from 0° to 360°, and if the maker understands how to do it, have a shield of brass cut out here and there, to admit light, fixed over the glass.—Reserve, two spare glasses and a second azimuth compass.

Three common pocket compasses, from an inch to an inch and a half in diameter. Their needles must carry cards graduated, like those of the azimuth compass, from 0° to 360°, in addition to the points. These compasses should be very light in weight, have plenty of depth, and be furnished with catches. The needles should work steadily and quickly. Avoid one that makes long, slow oscillations.

Telescope—

One of 2½-inch object-glass, for observing occultations of small stars and eclipses of Jupiter's satellites. The buyer should test it on the satellites, and be himself satisfied of its power, before concluding the bargain.

Stands—

A clamp to screw into a tree or a block of wood for the purpose of holding the telescope or sextant; one with three legs is perfectly useless to a traveller, for he has no table or anything else to put it on.

The ordinary telescope clamp makes a very good rest for a sextant by clamping a rod of wood, one end of which is weighted as a counterpoise, and the other, ending in a neck, is pushed through an auger-hole in the sextant handle, with a linch-pin stuck through its projecting end. Smooth action is not at all wanted for a sextant-rest.

Thermometers—

Two boiling-point thermometers. (Try them yourself against a good barometer to learn their index errors, at least; and recollect that for all purposes of determining heights, common water does just as well as distilled water.)

Two or three common thermometers, graduated to 160° at least, if for hot climates.

A pot arranged to boil the thermometer in.

Lantern—

I can only suggest a "bull's-eye," which was what I used: I wish I knew of a better. A small ball of spare wick. Oil.

Mapping Instruments—

Protractors—1 large circular brass one, 4 or 5 inches in diameter; 2 semicircular brass ones of 3½; all graduated, like your compasses, from 0° to 360°, and not twice over to 180°.

A station pointer for protracting sextant angles.

Two or three rulers of one foot each in ivory; a small square; a set of scales; small parallel rulers; compasses with pencil and pen; small pair of reserve compasses; fine ruling pen; a dozen artists' pins. Medium size measuring tape, say 12 yards; pocket ditto, 2 yards.

Additional Instruments not necessary, but convenient—

A pedometer of the best construction.

An Adie's sympiesometer.

I cannot recommend an explorer to have anything to do with either a chronometer or a mountain barometer.

Stationery—

A light board of the very best mahogany to rule and draw upon, as large as the writing-case will hold, say 11 inches by 7.

Plenty of metallic note-books, with spare pencils, all of one size, say 5 inches by 3½, or larger, with a leather pouch, having a flap buttoning easily over, to hold the one in use.

Two (or three) ledgers of strong ruled paper, 11 inches by 7, each with a leather binding; the pages should be numbered, and journal observations, agreements, sketches, and every single thing that is written, written in them.

Plenty of spare paper; it should be smooth, sufficiently thick, and fold up into 11 inches by 7.

A sheet of blotting-paper cut up and put here and there in the ledgers.

Tracing-paper, both black and transparent.

Blank map ruled for latitude and longitude.

Two dozen steel pens and holders; half a dozen fine drawing and holder; half a dozen FH pencils; half a dozen HB ditto.

Two penknives; India-rubber cut up in 5 or 6 bits.

Ink in abundance (ink-powders require vinegar). Red ink.

Paints, one cake or half a cake of each, viz. Indian ink, lake, cobalt, gamboge, oxgall, in a small tin case.

Half a dozen common paint brushes, one or two of which are kept in the case.

Books—

Raper's Navigation.

Nautical Almanack for current and future years, well bound.

Tables of Logarithms of Society of Useful Knowledge, well bound.

Tables for boiling-point thermometers.

Celestial Maps (uncoloured) pasted on canvas (and learn how to use them).

Three or four small 6*d.* or 1*s.* almanacks of any kind (the Nautical is far too cumbrous and on too bad paper for daily use; Hannay and Dietrichsen give a vast deal of information; the Seaman's Almanack, White's Ephemeris, &c.: they are useful to select and cut tables out of).

The best maps of the country you are going to visit that are to be obtained.

Notes on the above Outfit.

With these instruments, latitudes can easily be found to 300 yards; the sextant, mounted as it may be on a stand, will give nearly as accurate longitude as a sextant can be expected to give. When observing lunars with the larger one, the small sextant will take time at the end of each set as a check upon the watch. The telescope will give the traveller an opportunity of observing occultations of small stars, (not only those given in the Nautical Almanack, but also of others,) which is the most accurate way of finding longitude and the eclipses of Jupiter's satellites, which is the readiest way, and by no means so inaccurate a one as to be altogether worthless. For rapid reconnoitering expeditions on horseback the little sextant would be carried by a belt round the waist, and would give latitudes easily to 500 yards.

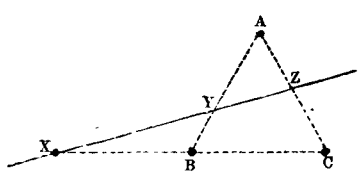
It may save trouble to others if I mention here the way which, after many trials, I adopted of observing with a sextant. During the day time I made out a list of the stars that culminated at convenient hours, and their expected altitudes. I set my watch by sunset, if it was very wrong, and spread my rug north and south in an open spot of ground, trampling down the bushes and long grass round it. Then, when the time of observing approached, I lighted my lantern and set it on the ground in front of my rug; to this I brought all my instruments, and first spreading a small cloth to the right of the lantern, I set my horizon on it, filled it with mercury, and covered it with a glass. The cloth was to catch any mercury that might be spilled. I then propped up my watch to the left of the lantern, laid down my note-book, with the leaves tied open, and taking out my sextant, adjusted it to the expected altitude, and screwing on the telescope, which always was kept at my focus, I laid myself flat down on the rug, and taking off the roof from the horizon if there happened to be no wind, and turning the glare of the lantern away from my eyes, and upon the watch, I made accurate contact of the star; then looking quickly round, I observed the watch. I now turned the lantern towards me, changed hands with the sextant, read off and wrote down, turned the lantern back on the watch and recommenced. For a meridian altitude I read off and wrote down about ten observations, both time and altitude, beginning a little before the star reached the meridian, and continuing after it had perceptibly sunk; it was thus easy to tell with accuracy what the meridian altitude really was. For lunars my sextant was always on a stand. I took time with another sextant before beginning, also two or three times during the progress of the lunar, and finally at the close of all. I was thus very independent of the good going of my watch. for by observing every half hour, no watch that went at all could

be many seconds wrong. It is of very little consequence that the movements of a stand should be smooth and steady; its object is to so hold the sextant as to retain the moon and star in its field, while the observer is reading off and writing down. Neither of my instruments were fitted to a stand, but by very rough carpentering I made two which proved of infinite service and comfort to me, and which I have alluded to under the head telescope stand. The figures upon the face of a common watch are inconvenient in reading off minutes: therefore, in the first place open the glass, and with a pen and ink make a good conspicuous dot upon each five-minute division, and should you happen to make a blot, it does not in the least matter, for a wet finger entirely removes it. Next stitch together a watch-pocket, to be used when observing; it should be padded soft behind, and expose the face of the watch after the usual way, through a round hole cut out of the middle of a cardboard front. Now draw radiating lines on the outside of this cardboard opposite to each five-minute division, never mind if they are not very accurate, and write legibly on them in italics, the numbers 5, 10, 15, &c., up to 60. Many a mistake will be avoided by doing this, for after long observing the eye becomes sorely puzzled and all kinds of misreadings are put down. If the figures on the watch dial be faint, the numbers may be written over them, or the hour hand may be shortened and a paper ring pasted on to receive the new numbers; the observer can suit his fancy in this.

It will be most in place here for me to add what remarks I would make about sextant and other observations. If you commence to observe for longitude at all, make a regular night of it, working hard and steadily, and accumulating masses of observations at one station. Taking a few observations at many stations is time thrown away. Endeavour with much forethought to balance your observations. If you have to take a star's altitude for time east, select and wait for another star as nearly as may be of the same altitude west, and use the same telescope, horizon roof, &c. If a meridian altitude be taken north, choose another star and take it south, and so with lunars. In this way your observations will be in pairs, and the mean of each pair will be independent of all instrumental and refraction errors; and by comparing the means of these pairs, one with another, you will know your skill as an observer, and estimate with great certainty the accuracy that your results have reached. Never rest satisfied with your observations, unless you feel sure that you have gained means of ascertaining the limit beyond which you certainly are not wrong. Weight all your observations; that is, when you write them down, put good, very good, doubtful, &c., by their sides. When taking occultations, if the star be not down in the Nautical

Almanack list, do all you can to identify it by drawing diagrams of adjacent stars, and indicating the point of the moon's limb that occults it. Before observing, see that the minute hand and second hand of your watch go together, that is to say, that the minute hand is truly over a division when the second hand points 0 seconds; if it be not, move it till it is.

The azimuth compass is one of a traveller's most useful instruments. To use it, it is best to make a pile of stones and lay the cover of the compass on the top, with its bottom upwards; this makes a smooth table for the azimuth compass itself to be moved about on. Be on guard against magnetic rocks; it may happen that the bare peaks of high hills, which are the best of places for observing from, and which a traveller often makes great sacrifices to reach, are found so magnetic as to make compass observations worthless. The little sextant should always be taken up on these excursions. It is of little use in a wild country to devote much time to getting accurate bearings, as the landmarks themselves are rarely well defined: the main endeavour should be not to mistake one hill for another, to judiciously select good angles, and to carry on more than one independent scheme of triangulations at the same time, by comparison of which the accuracy of the whole may be tested. It is surprising how much work may be thrown away by want of judgment; and also how much may be done, with very little trouble, by a person who has acquired a good eye and memory of country. The daily difficulty of an explorer is to triangulate without leaving his caravan: to do this he must note the bearings of hills when they are in conjunction, and also when he happens to be in a straight line between them.



Thus, in travelling along X Y Z, the hills A B C can be mapped; for at X, or thereabouts, the bearing of B from C can be determined; at Y that of A from B; and at Z that of A from C; and so on for any number of hills. And it is very important to recollect that it is not necessary to catch these lines of sight precisely; for by taking bearings twice, and the intermediate course approximately, there are sufficient data for protracting out upon paper the required bearing. Thus, as soon as the peak of a distant hill is about to be occulted by the shoulder of a nearer one, a bearing should be taken; and again another one as soon as it has reappeared on the other side, and the intermediate course noted.

Suggestions for carrying the above Instruments.

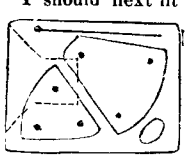
Wear a leather belt 1¾ inches broad round the loins, to the outside of which, besides any other pouches that you may wish to carry, the leather case of the azimuth compass and the leather pouch of the note-book are sewn. The place for the compass is against the small of the back; for the note-book, behind the right hip. The other instruments must be carried in cases. I have tried many ways myself, and if I were to start again on a journey I should adopt the following. First, I should divide the instruments into three groups, A. B. and C., of which I give the average weights:—

A.	Weight in lbs.
Five-inch sextant	2
Three-inch sextant	1¼
Horizon trough, bottle, and roof	2½
Thermometers and watch	¾
Loose sheets of tables, a ruler, protractor, compass, and pencil, spare watch glass	½
	7

B.	Weight in lbs.
Telescope (about)	4
Lantern	1½
Light stand and counterpoise	2
Spare oil	¾
Pot for boiling thermometers	½
	8¾

C.

Almanacks, maps, tables, mapping instruments, &c.



I should next fit up a common deal box, as a model, for group A., and would follow the general arrangement of the sketch, differing from it only so far as peculiarities, in the particular instruments bought, might render necessary. The horizon apparatus would slip into a separate compartment which did not communicate with the interior of the box, for fear of any mercury getting loose upon the instruments; its position is dotted out. The dark lines show the sizes of sextant boxes as usually made, so that plenty of room is allowed in the sketch for horse-hair stuffing. The small sextant I should pack in its leather case; for the larger one I should take no case at all. The thermometers, thrust into a thin tin case, would go along the upper part of the box, and a watch in the right hand lower corner: the size of the whole inside measurement is 11 inches by 7½, and about 4 deep. Having satisfied myself that the fittings of the box were secure and convenient, I would have a light one made of painted tin after its model; it should lock, and also have hooks to secure the lid, even when it was not locked. Places should be made for leather handles, one to go at each end of the box, and two, crossways, on the top. Its weight would be in all 4 lbs.—the box a little less than 3 lbs. and the stuffing rather more than 1 lb. This accomplished, I would order two more boxes of the same length and breadth, one of them of 4 inches deep to hold group B, which might be arranged with the telescope along one side, the lantern and thermometer pot end to end along the other, and the stand and counterpoise between them, while a flat oil-can an inch deep extending the whole breadth and depth of the box, or 7 inches by 4, would fit in a narrow compartment at one end. The third box should be a kind of writing-desk, and of a depth sufficient to hold group C, say 6 inches. The fitting up of this would be entirely a matter of fancy. Lastly, I would have

a couple of thickly-quilted canvass bags, in which the boxes A and B might be slipped endways. Each bag should have a flap to button down, be painted some light colour, and have strong loops sewn at the four corners of its back. The weight of each bag would be 1½ lbs. Thus, A, box, bag, and all, would weigh 12½ lbs.; B, 14 lbs. These weights are certainly heavy, but they are practicable, and each package is very convenient for carrying as a knapsack or in any other way. For ship, boat, or waggon travelling, a light wooden chest should be procured which would just hold the three boxes, and then putting the quilted bags at the bottom, the boxes would lie one above another as the trays in a canteen. As a protection against the fearful jolting of a waggon, it would be advisable to inclose the chest in a large pannier and loosely to stuff up the interval between them with sacking, clothes, or anything else at hand. The outside measurement of the chest would be 13 inches long, 9 broad, and 15 inches deep; those of the pannier 5 inches larger every way.

Hints for Collecting Geographical Information.

1. *Aspect.*

1. What is the general aspect of the country?
2. Mountainous or hilly?—Sharp peaks or rounded outlines?
3. Of the coast? Abrupt or shelving? Rocky or in cliffs?
4. Downs of Sand? Low or flat?
5. Any active volcanoes? or traces of extinct ones? or their probable forms in the outline of the mountains?

2. *Surface.*

1. Is the surface level or undulating?
2. Has it a tendency to table lands, or steppes?
3. Is the soil rich or poor? loamy—sandy—boggy?
4. Are the plains fertile or barren? wooded or cultivated?
5. What its general capabilities?

3. *Physical Divisions.*

1. Note the chief divisions of the country.
2. Mark especially the line of separation of waters.
3. Trace the outlines of the principal basins of the chief rivers.
4. Group the country into basins as far as practicable; it will be found the simplest mode of describing it.
5. Trace also the limits of the secondary valleys comprising the tributaries to the main stream.
6. May they from position be called upper and lower basins?
7. Do distinct traces of mountainous—hilly—flat—wooded jungle—cultivated—sandy—marshy, or barren, country exist? if so, note their limits generally.

4. *Mountains.*

1. What the direction of the chief range, or ranges?
2. What the general form of outline? (Describe while in sight, *not* from memory.)
3. What is the *estimated* height (if no measurement can be had) of the chief points; and also of the general range?
4. Are any of them snow-capped? (State the season.)
5. How far down does the snow extend? (Note north or south side.)
6. Are they wooded?—At what height does the wood finish?

7. At what height does vegetation cease?
8. Are the mountains in groups or masses? or detached?
9. Obtain bearings, by compass, of the limits of the range, and of all remarkable points, masses, gaps, &c.
10. Mark the chief mountain-passes, and note if they might be easily defended against an enemy.
11. What their general structure?

5. *Rivers.*

1. What are the native names of the chief rivers?
2. Trace the general course of each; with its windings, if possible.
3. Does it receive many tributaries? note their names in order, from its sources, distinguishing on which side they join.
4. Is it navigable for large or small craft? and to what extent?
5. How far up does the tide reach? Is the current rapid? What its rate?
6. Does it flow by several outlets, or by one grand mouth to the sea?
7. Does it form a bar, or banks, or islands at its mouth?
8. What the width of the river at its outlet? and at various points?
9. Is the river ever fordable? Name the chief fords.
10. Does it form cascades, or rapids, or occasionally inundations?
11. Does it at any season lose itself in sand, or otherwise not reach the sea?
12. Does it flow from a lake, or from other sources or springs?
13. What may be the probable elevation of its source above the sea? measured or estimated?
14. Is the bed of the river gravel, sand, or mud? Does it bring down much detritus?
15. What the colour of the water? Does it retain it at any distance from land?
16. Is the river obstructed by islands, shoals, rocks, snags, or any obstacle to steam navigation?
17. Are its banks wooded? Is fuel easily procured?
18. Does it abound in fish? and in what species?
19. Is it navigated by native boats? and how far up?
20. Describe each affluent as a main stream, with its tributaries, marking the position of junction, and the angle at which it joins its recipient.

6. *Lakes.*

1. What the native names of the lakes?
2. What is the situation and extent of each?
3. What its level, above and below the sea? How ascertained?
4. Is it formed by rivers or springs? or does it feed any river?
5. Is it of salt or fresh water? Is it said to rise periodically?
6. What its general depth of water?
7. Are there any vessels or boats upon it? and of what size?
8. Are its banks rocky or steep, or low? Are they wooded or barren?
9. Could fuel be readily procured? Does it offer facilities, or the contrary, to steam navigation?
10. Are its shores thickly inhabited? Are birds, fish, shell-fish, &c., plentiful, and of what sort?
11. Are any marshes or ponds known, and where? Are they constant or periodical?

7. *Sea Coasts and Ports.*

1. Does the coast form gulfs, bays?
2. Promontories, peninsulas, capes, low points, &c.?
3. Is it abrupt, bold, rocky? or low, flat, and shoal?
4. Are there currents along the coast? Note their force and direction.

5. Name the chief *ports*. Are they secure harbours, or only open bays, or roadsteads for anchoring?
6. What the depth of water, and what bottom for anchoring?
7. Is the port capable of containing many vessels? Does it offer facilities for repairs?
8. Can water, provisions, and fuel be easily procured?
9. Note the time of high-water at full and change of moon, and rise and fall of tide; and direction and velocity of stream.

8. *Volcanoes and Mineral Springs, &c.*

1. Are any now active? or, are there traces of extinct volcanoes?
2. Give their position—height above the sea—and native names.
3. Does tradition or history record any eruption? at what date?
4. Was the eruption of fire, lava, scoriæ, water, or mud?
5. Are earthquakes frequent? Are there records of any having occurred?
6. What were their effects? how far did they extend? any up-heaving or depression of land recorded?
7. Are many *mineral springs* known? Hot, tepid, or cold? (Note the temperature if possible) Are their waters used medicinally?
8. Do they form deposits? Siliceous or calcareous?

9. *Maps, Charts, &c.*

1. Do any charts of the coast, or maps of the country, or partial surveys exist? Native or otherwise? What their respective dates?
2. Are they believed to be accurate? Upon what scale?
3. Endeavour to map the country, starting, if possible, from a fixed point; if exact observations cannot be obtained, give compass bearings, and estimated heights and distances. (N.B. Heights may often be obtained by length of shadow, &c.: distance by velocity of sound, &c.) The scale of one inch to a geographical mile is recommended.
4. Take bearings of all remarkable objects in sight from any known station, as mountain-peaks, masses, gaps, towns, villages, forests, &c. &c., and transfer all to paper immediately; trust nothing to memory.
5. Preserve all original observations and documents relating to surveys; and make two or three copies of observations.
6. Obtain correct *native* names if possible, and keep to one standard of orthography. Mark all hearsay information with the initials of the informant. If a journey is made by night, or in foggy weather, trace it with coloured ink.

10. *Astronomical Observations.*

1. Are any positions astronomically determined? What reliance may be placed on them?
2. It is very important to obtain observations for the position of all capes, headlands, points, towns, villages, &c.; mountain-peaks, passes, limits of range, &c.; lakes, sources, confluence, and outlets of rivers; in short, of every remarkable object.
3. Endeavour to obtain the *latitude* by meridian altitude of the sun, or of a planet, or of a star, or of the moon.
4. *Longitude*—by eclipses of Jupiter's satellites, especially by eclipses of the third and fourth satellite, when both immersion and emersion can be observed,—or by any other eclipse; by moon culminating stars; by occultations of fixed stars by the moon; by lunar distances from the sun, or a planet, or a star, always East and West when possible; by an altitude of the moon in the prime vertical; or by chronometers;

state always by which method obtained, and what reliance may be placed on it.

5. Observations on the variation of the compass, and dip of the needle, are very important.

Instruments.

A repeating circle, or sextant of five-inch radius; a pocket sextant; an artificial horizon; Kater's compass; two mountain barometers; and two thermometers, with a good pocket chronometer; are sufficient for all common purposes.

Meteorology.

1. Keep an exact register of the barometer and thermometer.
2. What are the prevalent winds? What the periodical?
3. What the average fall of rain?
4. What the amount of evaporation, &c.

Natural History.

1. Note the geographical distribution of man, animals, birds, fishes, insects, plants, &c.
2. Obtain information on all branches of Natural History, bearing in mind that the useful and practical is of more importance than the merely curious.

For detailed instructions, under each head, recourse should be had to the respective sources.

Ethnography.

1. Obtain vocabularies of the native language—phrases rather than single words. Keep to a fixed standard of orthography in writing them down: the sounds of the vowels in *father—there—ravine—mole—lunar*, are recommended as the most simple, and as being both English and European.
2. Note the habits, manners, customs, and amusement of the natives.
3. What notion have they of a supreme being? what of a future life? what, if any, their religious ceremonies?
4. What their treatment of the aged, of the sick, and of children?
5. What seems to be the form of government? Is division of property recognised? Do they buy and sell land?
6. Do they trade or barter with each other, or with strangers?
7. Note the number of natives seen from day to day, distinguishing the sex, and children.
8. Are there many lunatics or idiots?
9. What the usual form of feature? the shape of the skull? hair? colour? stature? bodily constitution?
10. Is plurality of wives common? are women without husbands frequent?
11. Have they any marriage ceremonies? how do they treat their wives?
12. Do they give proof of capacity for civilization?
13. May the natives be trusted as guides—as messengers—or to procure food?
14. What presents please them best?
15. What words or signs do they use when hostile? or when friendly?
16. What are their dwellings? What their chief articles of food?
17. What their disposition—savage or gentle; rash, hasty, or inoffensive? Are they disposed to receive instruction?
18. Are any cases of cannibalism reported? N.B. To investigate strictly under what circumstances they occurred.
19. Are the people said to be increasing or decreasing?
20. Does slavery exist? What is the condition of a slave?

21. What are their diseases? What their medical treatment?
22. Can the traveller point out the most probable mode of civilizing and benefiting the natives?
23. What traditions are current respecting the origin of the people?
24. Collect all information that can throw light on the migration of nations.

N.B. The greatest forbearance and discretion are strongly recommended in all intercourse with the natives—never to allow an imaginary insult to provoke retaliation which may lead to bloodshed. It must be borne in mind their's is the right of soil—we are the aggressors.

DESCRIPTIVE GEOGRAPHY.

Names of Country.

Boundaries.

Configuration of Surface—

General Character; Mountains; Plains; Valleys.

Names, Passes, Culminating Points, Snow-level, Altitudes, Peculiar Phenomena, Outline of Base and on given Contours, Sections, Latitudes and Longitudes, Bearings and Distances.

Hydrography—

Rivers and Tributaries.

Course and Windings, Length, Section of Fall, Navigable Extent, Tidal Extent, Soundings, Velocity of Current, Banks, Fords, Inundations.

Lakes.

Outline, Sections of Depth, Feeders, Outfall, &c.

Marshes; Seas; Coasts; Harbours; Drainage Areas.

Topography and Itineraries.

Meteorology—

Winds; Rainfall; Temperature; Atmospheric Pressure; Evaporation; Meteoric and Magnetic Phenomena; Methods of Observation and Registration.

Zoology—

Species found in Country; Distribution of Animals; Useful Animal Products, Wild and Domesticated; Directions for Collecting, &c.

Botany—

Species found in Country; Distribution of Plants, &c.; Useful Vegetable Products, Wild and Cultivated; Directions for Collecting, &c.

Geology—

Geological Formations; Mineral Products; Soils; Directions for Collecting, &c.

Physical Divisions—

High and Low Lands; Drainage Areas; Forests; Heaths; Barren and Cultivated Ground; Pastures; and other divisions based on Geographical Distribution.

Cartography—

Examination of Existing Maps, Contributions to Cartography, Construction of New Maps, the Methods of Geodesical and Astronomical Observation.

ETHNOLOGY AND STATISTICS.

Population—

Names of Nation, Tribe, &c.; Geographical Distribution; Total Number; Number of families, &c., Males, Females, Children; Characteristic Form,—dimensions, weight, colour, odour free from uncleanliness, hair, features; Unnatural modifications of form,—by pressure, mutilation, incision, &c.; Moral and Intellectual Character; Diseases,—corporeal and mental; the Generation, Development, and Vitality of the Population; Classifications of Population; Condition of various classes.

Habitations—

Distribution, Character, Number.

Communications—

By Land and by Water.

Occupations—

Pastoral, Agricultural, Maritime, Arts, Manufactures, Trades, Commerce, &c.; Ceremonies, Amusements, &c.

Food; Costume; Utensils; Weapons and Warfare; Weights, Measures, Division of Time.

Language—

Literature, Books, MSS., Inscriptions, Picture Writings, Songs, Tales, &c.; Vocabularies of natural objects, qualities, action, relationship, numerals, pronouns, positionals, &c.; Grammatical Variation of Words; Construction of Sentences; Dialectic Variations; Intonation and peculiar Utterances; Geographical Distribution of the Language.

Music—

Vocal and Instrumental.

Religion; Traditions.

History—

Origin, Migrations, Increase and Decrease of Territory.

Government—

Territorial Divisions, Laws, Functionaries.

Foreign Relations.

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THE

ROYAL GEOGRAPHICAL SOCIETY OF LONDON,

15, WHITEHALL PLACE.

PATRON, THE QUEEN.

ORIGIN, OBJECTS, AND PROGRESS.

THE Royal Geographical Society was founded in the year 1830, and shortly afterwards the African and Palestine Associations* were incorporated into it.

The objects of the Society were at an early period stated to be—

1. To collect, register, digest, and print, in a cheap and convenient form, such useful and interesting facts and discoveries as the Society might from time to time acquire.
2. To collect a Library of Geographical Works, ancient and modern; Voyages and Travels; Instruments; Maps and Charts; as well as such Documents and Materials as might convey the readiest information to persons intending to visit Foreign Countries, and who might again in their turn there deposit the results of their observations for the benefit of the Public.
3. To prepare brief instructions for such as are setting out on their travels, pointing out the parts most desirable to be visited; the best and most practical means of proceeding thither; the researches most essential to make; phenomena to be observed; the subjects of Natural History most desirable to be procured; and to obtain all such information as might tend to the extension of our Geographical Knowledge.
4. To Correspond with similar Societies in different parts of the world, with foreign individuals engaged in Geographical pursuits, and with intelligent British subjects in the various Settlements of the Empire.
5. To reward with a Medal, or otherwise, such individuals as in the opinion of the Council had of late contributed most towards the advance of Geographical Science and Discovery.

In order to show, at a glance, the various inquiries which it was proposed to encourage, the leading divisions of the science were thus arranged:—

* The former established in 1788; the latter in 1805.

- Geography
  - Absolute
    - Of the mass and form of the globe.
    - Motions and intrinsic properties of the globe.
    - Of effects from celestial causes.
  - Physical
    - Natural divisions and geological features of the world.
    - Mountains, places, deserts, mines, and minerals.
    - Particulars of the animal and vegetable kingdoms.
    - Seas, lakes, rivers, and springs.
    - Currents, tides, hydrographical data.
    - Climate, winds, weather, and seasons.
    - Volcanoes, earthquakes, and other phenomena.
  - Special
    - Ancient and modern history of the earth.
    - The distribution of races and languages.
    - Names, derivations, and revolutions of states and cities.
    - Latitudes and longitudes, astronomical and geodesical.
    - The variation, dip, and other magnetic phenomena.
    - Determination of heights and distances.
    - Relative magnitudes of all countries and nations.
  - Political
    - Population, division of the people, general statistics.
    - Artificial divisions of lands, agriculture, produce.
    - Commerce, manufactures, fisheries.
    - Government, manners, customs, laws, policy.
    - Canals, roads, mills, bridges, markets.
    - Religion, education, forces, arts.

A.—JOURNAL.

In the pursuit of these objects, the Society has published an Annual Journal of Transactions, comprising a large number of interesting Memoirs, and prepared with great care. The Journal, now extending to twenty-four volumes (to the first twenty of which a "General Index" has been published), contains the most important original papers read before the Society, illustrated by numerous costly Maps and Diagrams, by our best practical geographers, such as Arrowsmith, Walker, Findlay, Hughes, &c.

These volumes comprise nearly 500 original papers, of which 15 are on Europe, 130 on Asia, 78 on Africa, 83 on America, 44 on Australia and the Islands, 26 on General Geography, besides 120 Analyses of Works and Miscellaneous Articles. The Illustrations consist of 185 Maps and Charts, besides 59 Views, Cuts, and Diagrams, which have greatly contributed to the improvement of the maps prepared for the public by geographers.

Among the names of the authors of the above papers may be mentioned those of—

Abich, Ainsworth, Allen, Back, Baer, Baines, Barker, Barrow, Barth, Beke, Bethune, Bollaert, Brierly, Brown, Brunner, Buist, Burnes, Burton, Butakoff, Carless, Carter, Chaix, Chesney,

Clarke, Colchester, Collinson, Colthurst, Cooley, Crawfurd, Cruttenden, Davis, Dease, Dickson, Douglas, Duncan, Earl, Erskine, Eyre, Findlay, Fitzgerald, FitzRoy, Forbes, Forchhammer, Franklin, Galton, Gassiot, Gordon, Gråberg da Hemsöe, Graves, Gregory, Grey, Grover, Gützlaff, Haines, Hamilton, Harvey, Helpman, Henderson, Higgin, Hilhouse, Hoffmann, Hogg, Hooker, Inglefield, Jackson, Jervis, Jochmus, Jones, Kennedy, Lander, Latham, Layard,. Leake, Lefroy, Lejchhardt, Leigh, Leycester, Lindley, Livingston, Lloyd, Logan, Long, Lysaght, McClure, McGillivray, McQueen, Malden, Mathison, Mitchell, Molyneux, Monteith, Moorcroft, Müller, Murchison, Newbold, Norris, Oersted, Oswell, Overweg, Parish, Parkes, Parkyns, Paynter, Prevost, Prudhoe, Rae, Rawlinson, Renouard, Richardson, Rink, Robinson, Roe, Saunders, Schomburgk, Selby, Seymour, Simpson, Skene, Smith, Smyth, Snow, Spratt, Stokes, Strachey, Sturt, Sykes, Synge, Temple, Tickell, Thomson, Thurburn, Vetch, Vidal, Vigne, Vogel, Wallace, Wallin, Washington, Whitney, Wildenbruch, Wilkinson, Wrangel, Yorke.

The Journal is presented, upon application, free to the Members of the Society, as well as to the principal Public Institutions of this and other countries, and is sold to the public at a very moderate price.

In addition to the Journal, the Society has also aided in the publication of various works of interest, which otherwise would not easily have been brought before the public, such as 'Voyage to Greenland,' by Captain Graah, of the Danish Navy; the 'Grammar of the Cree Language,' by Mr. Howse, &c.

B.—LIBRARY AND MAP-ROOMS.*

A large and valuable collection of Books, Pamphlets, Manuscripts, Atlases, Maps, Charts, Plans, Views, Models, and Instruments, has been formed, fresh accessions to which are being constantly received through the liberality of public and private contributors from all parts of the world, the names of whom are duly registered in the published Journals of the Society.

Among the Books will be found many works on Systematic Geography, as well as numerous Collections of Voyages and Travels, &c. The Library also contains a rich collection of the Transactions of other Learned Societies; together with the official

* The Library is one of circulation among the Members.

publications of different Governments relating to the various branches of Geographical Science.

Among the Maps are many of great value, not otherwise accessible to individuals seeking information in this country, such as the Topographical Maps of France and other countries, presented by the Dépôt .de la Guerre; Maps of Sweden and Norway, Denmark, Russia, Austria, Bavaria, Saxony, Wurtemberg, Holland, Belgium, Spain, the Swiss Cantons, the Italian States, the Survey of India, and those of the United States, presented to the Society by the Governments of those countries. The Charts and Sailing Directions of the Admiralty, of the French Dépôt de la Marine, and of the Hydrographical Departments of the Russian, Danish, Dutch, Spanish, and United States' Governments, have also been contributed to the Society's collection, together with those of the principal private establishments of this and other countries.

Besides these may be mentioned the original MS. Maps sent to the Society, since its foundation, by travellers, voyagers, and explorers, forming a very interesting and most important part of the collection.

The Map-rooms of the Society having, by the direction of the Council, been thrown open to the public, this arrangement, as well as the general utility of the Institution, has been liberally recognised by an annual grant of 500*l.* from Her Majesty's Government.

The Government exhibits also its interest in the welfare of the Society by making it the medium of communicating to the public various Official Despatches of Geographical importance; and with the sanction of the Government, the British Consuls and Vice-Consuls abroad, have been invited to collect such geographical information as they may be able to do, for transmission to the Society.

C.—INSTRUCTIONS TO TRAVELLERS; CORRESPONDENCE, ETC.

In preparing instructions and in aiding such travellers as the Council may think proper persons to carry out its objects, the Society has not been idle. A condensed Notice, entitled "Hints for Travellers," drawn up at the request of the Council, is published in the twenty-fourth volume of the Journal, separate copies of

which may be obtained by travellers upon application to the Secretary.

In the Library various works, embodying more detailed advice to travellers, may be consulted; and at the Evening Meetings, as well as through the medium of the Secretary, opportunities are afforded for obtaining information from the most experienced Members of the Society.

Besides the liberal presentation of its publications to the principal Public Institutions* of this and of other countries, a copy of the Journal is also furnished to each of the Foreign Honorary and Corresponding Members on whom the Diploma of the Society has been conferred. These are, at present, Akrell, the Archduke John of Austria, Baer, Balbi, Beautemps-Beaupré, Berghaus, Carrasco, Cassalegno, Chaix, Coello, Daussy, D'Avezac, Duperrey, Ehrenberg, Erman, Everett, Falkenstein, Grinnell, Hammer-Purgstall, Hansteen, Helmersen, Hügel, Humboldt, Jomard, Karacsay, Kupffer, Lütke, Macedo, Madoz, Martius, Meyendorf, Negri, Oberreit, Pelet, Rafn, Ranuzzi, Ritter, Rüppell, the Grand Duke Constantine of Russia, Santarem, Schomburgk, Schoolcraft, Struve, Swart, the Crown Prince of Sweden and Norway, Tanner, Tchihatcheff, the Grand Duke of Tuscany, Urcullu, Vander Maelen, Woerl, Worcester, Wrangel, Zeune, Ziegler.

D.—EXPEDITIONS.

Every quarter of the globe bears testimony to the exertions of the Society in behalf of Geographical enterprise and discovery. Various important Expeditions, involving a cost of several thousand pounds, have been carried out entirely at the expense of the Society, while numerous others have been assisted with grants of money, loan of instruments, and useful instructions. In these the support of Government has likewise often been liberally given. Among the Expeditions may be mentioned, the Arctic Expeditions under Sir George Back and others, that of Sir James Alexander in Southern Africa, the Kurdistan Expedition of Ainsworth and Rassam,† that under Grey and Lushington to Western Australia,

* A list of which is annually printed in the Journal.
† In conjunction with the Society for Promoting Christian Knowledge.

Schomburgk's to the Interior of British Guiana, Burton's Expedition to Arabia, besides others to the Bahr-el-Abiad, Abyssinia, Western Africa, New Zealand, &c.

E.—ROYAL AWARDS.

By the award of the Royal Medals the Council has also endeavoured impartially to recompense particular merit in travellers and others, whether existing among Englishmen or foreigners.

The following list of those who have received the Royal Awards will testify to the truth of the above:—

Lander, Biscoe, John Ross, Burnes, Back, FitzRoy, Chesney, Simpson, Rüppell, Rawlinson, Schomburgk, Raper, Wood, James Ross, Robinson, Eyre, Symonds, Hamilton, Erman, Beke, Ritter, Strzelecki, Middendorff, Sturt, Leichhardt, Brooke, Wilkes, Layard, Hügel, Frémont, Livingston, Wallin, Brunner, Rae, Strachey, Galton, Inglefield, Smyth, McClure.

The Society consists of an unlimited number of Fellows (at present 800) admitted by Ballot, and of 50 Honorary and Corresponding *Foreign* Members. The Entrance Fee is 3*l.*, the Annual Subscription 2*l.*, or Life Composition 25*l.*

The General Meetings are held on the 2nd and 4th Monday in every month, from November to June, or oftener, if such be judged expedient by the Council. At these, original papers, illustrated by Diagrams, Maps, and Views, are read and freely discussed. At the Anniversary Meeting, held in the month of May, the Royal Awards are presented to the individuals who are considered by the Council to be most entitled to the honour. On the same occasion the President delivers an Address, describing the Progress of Geographical Science during the past year, and the Council and Officers for the management of the Society during the following Session are elected.

Each Fellow, *whose Subscription is not in arrear*, is entitled to take part in and vote at all the Meetings of the Society; to have free admission to the Library and Map Rooms; to introduce friends to the Meetings and to inspect the Collections of the Society; to receive the Journals published subsequently to his election, &c.

GENERAL ABSTRACT OF AUDITED ACCOUNTS,

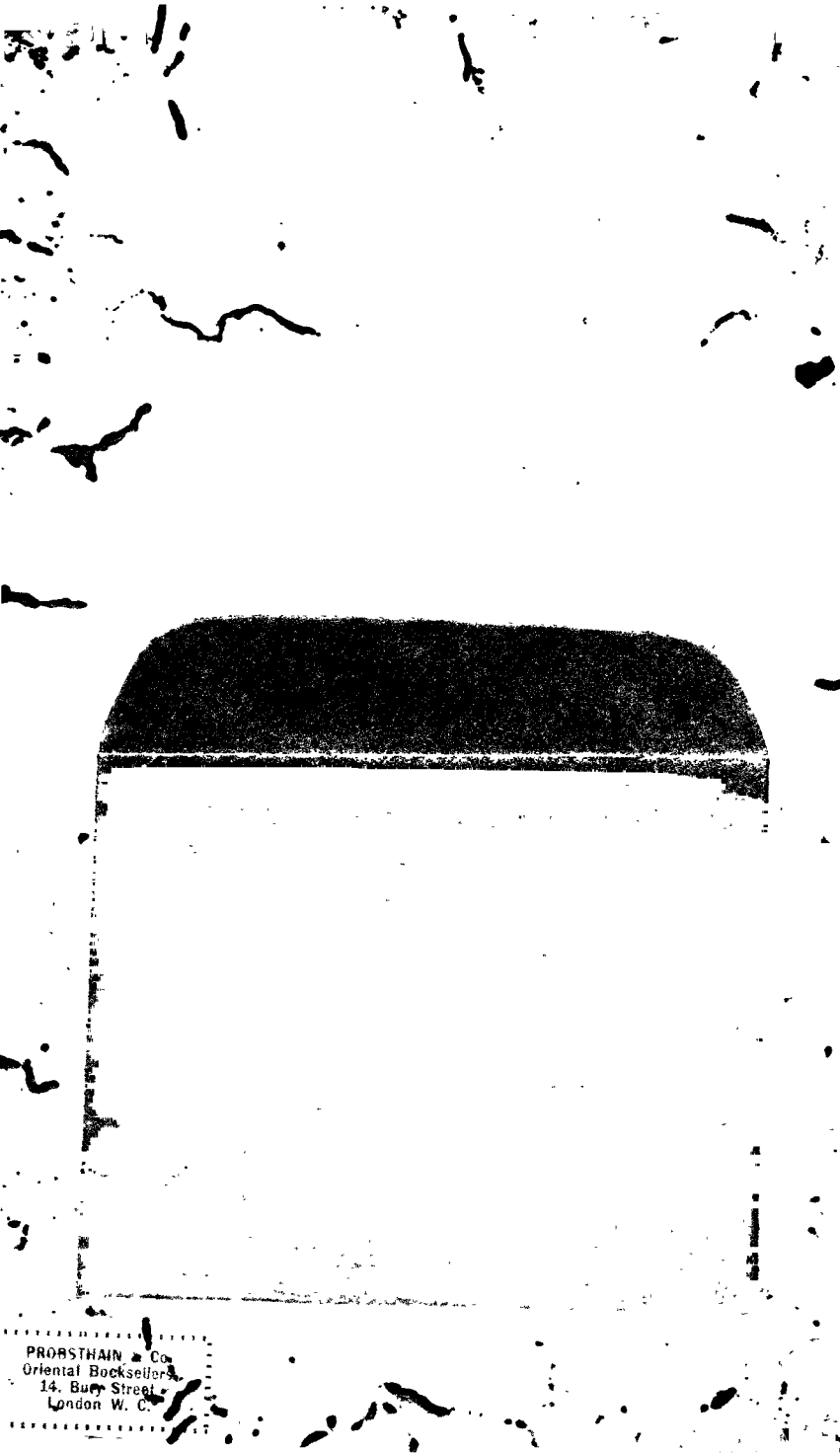
FROM THE 14TH OF JULY, 1830, TO THE 31ST OF DECEMBER, 1853.

Receipts.	£.	s.	d.
Entrance Fees	3,801	0	0
Life Compositions	8,089	0	0
Annual Subscriptions	12,157	19	0
In aid of Expeditions	2,368	5	0
Royal Premiums	1,207	10	0
Sales of Geographical Publications	2,257	8	1
Dividends and other Receipts	3,844	0	3
Sales of Stock	2,963	5	2
	£36,688	7	6

Payments.	£.	s.	d.
Rent, Fixtures, and Fittings	5,645	8	3
Office Expenses	3,427	3	10
Salaries—Secretary, Editor, and Clerks	6,585	5	0
Cost of Geographical Publications	8,807	14	8
Purchase of Books, Maps, and Instruments	1,232	11	10
Grants in aid of Expeditions	4,186	8	0
Medals and other Premiums	1,301	10	0
Life Compositions invested	4,626	0	0
Subscriptions returned	89	8	0
	£35,901	9	7
Cash balance in hand	786	17	11
	£36,688	7	6

E. OSBORNE SMITH, *Auditor.*

NORTON SHAW, *Secretary.*



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